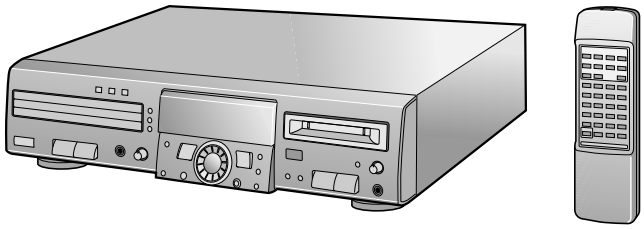
SHARP SERVICE MANUAL

No. S2814MDR3////



MD-R3

- In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified should be used.

CONTENTS

	Page
IMPORTANT SERVICE NOTES	2
SPECIFICATIONS	2
NAMES OF PARTS	3
OPERATION MANUAL	4
QUICK GUIDE	7
DISASSEMBLY	8
REMOVING AND REINSTALLING THE MAIN PARTS	11
ADJUSTMENT	14
EXPLANATION OF ERROR DISPLAY	29
EXPLANATION OF MECHANISM ERROR	30
NOTES ON SCHEMATIC DIAGRAM	33
BLOCK DIAGRAM	34
SCHEMATIC DIAGRAM/WIRING SIDE OF P.W.BOARD	40
VOLTAGE (MD MAIN PWB)	58
WAVEFORMS OF CD CIRCUIT	59
WAVEFORMS OF MD CIRCUIT	60
TROUBLE SHOOTING	62
FUNCTION TABLE OF IC	71
PARTS GUIDE/EXPLODED VIEW	
PACKING OF THE SET	

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

IMPORTANT SERVICE NOTES

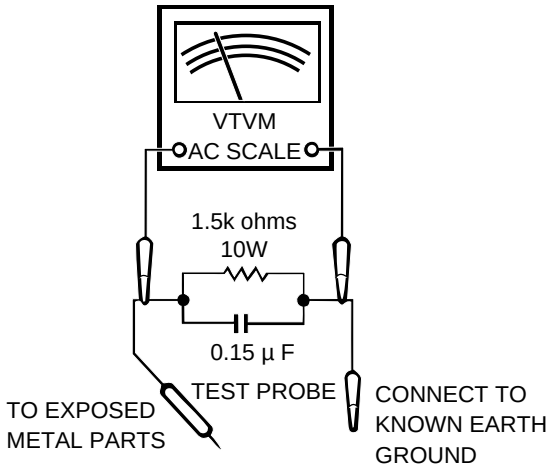
BEFORE RETURNING THE AUDIO PRODUCT

(Fire & Shock Hazard)

Before returning the audio product to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the audio product.
2. Inspect all protective devices such as insulating materials, cabinet, terminal board, adjustment and compartment covers or shields, mechanical insulators etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

* Plug the AC line cord directly into a 120 volt AC outlet.
* Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as conduit or electrical ground connected to earth ground.
* Use a VTVM or VOM with 1000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor (See diagram).
* Connect the resistor connection to all exposed metal parts having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.



All check must be repeated with the AC line cord plug connection reversed.

Any reading of 0.3 volt RMS (this corresponds to 0.2 milliamp. AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the audio product to the owner.

SPECIFICATIONS

● General

Type: MD/CD Deck
Power source: AC 120 V, 60 Hz
Power consumption: 20 W
Dimensions: Width: 16-15/16" (430 mm)
Height: 4-11/16" (118 mm)
Depth: 11-15/16" (302 mm)
Weight: 11.3 lbs (5.1 kg)

Input jacks

Jack name	Jack shape	Input impedance	Reference input level	Minimum input level
LINE IN	Pin jack	Over 22 kohms	680 mVrms	170 mVrms
OPTICAL IN (Optical)	Square optical connector	———	———	———
COAXIAL (Coaxial)	Pin jack	75 ohms	500 mVp-p	———
MIC (Micro-phone)	Stereo jack	600 ohms	6 mVrms	———

Output jacks

Jack name	Jack shape	Output level	Load impedance
PHONES (Headphones)	1/4" (6.3 mm) stereo jack	15 mW	32 ohms
LINE OUT	Pin jack	2 Vrms	50 kohms
OPTICAL OUT (Optical)	Square optical connector	———	———

● MiniDisc recorder section

Type: MiniDisc recorder
Signal readout: Non-contact, 3-beem semi-conductor laser pick-up
Audio channels: Stereo 2 channels/monaural (long-play mode) 1 channel
Frequency response: 4 - 20,000 Hz (+0/-1 dB)
Rotation speed: 400 - 900 rpm CLV, Approx.
Error correction: ACIRC (Advanced Cross Interleave Reed-Solomon code)
Coding: ATRAC (Adaptive TRansformed Acoustic Coding)
Recording method: Magnetic modulation overwrite methood
A/D, D/A converter: 1 bit
Sampling frequency: 44.1kHz
Wow and flutter: Unmeasurable (less than ±0.001% W. peek)
Signal/noise ratio: 100 dB (1 kHz)
Dynamic range: 90 dB (1 kHz)
T.H.D. at 1 kHz: 0.008%

● Compact disc player

Type: 3-disc multi-play compact disc player
Signal readout: Non-contact, 3-beem semi-conductor laser pick-up
Rotation speed: 200 - 500 rpm CLV, Approx.
Error correction: CIRC (Cross Interleave Reed-Solomon code)
Quantization: 16-bit linear
Frequency response: 4 - 20,000 Hz (+0/-1 dB)
D/A converter: 1 bit
Signal/noise ratio: 100 dB (1 kHz)
Dynamic range: 90 dB (1 kHz)
Wow and flutter: Unmeasurable (less than ±0.001% W. peek)

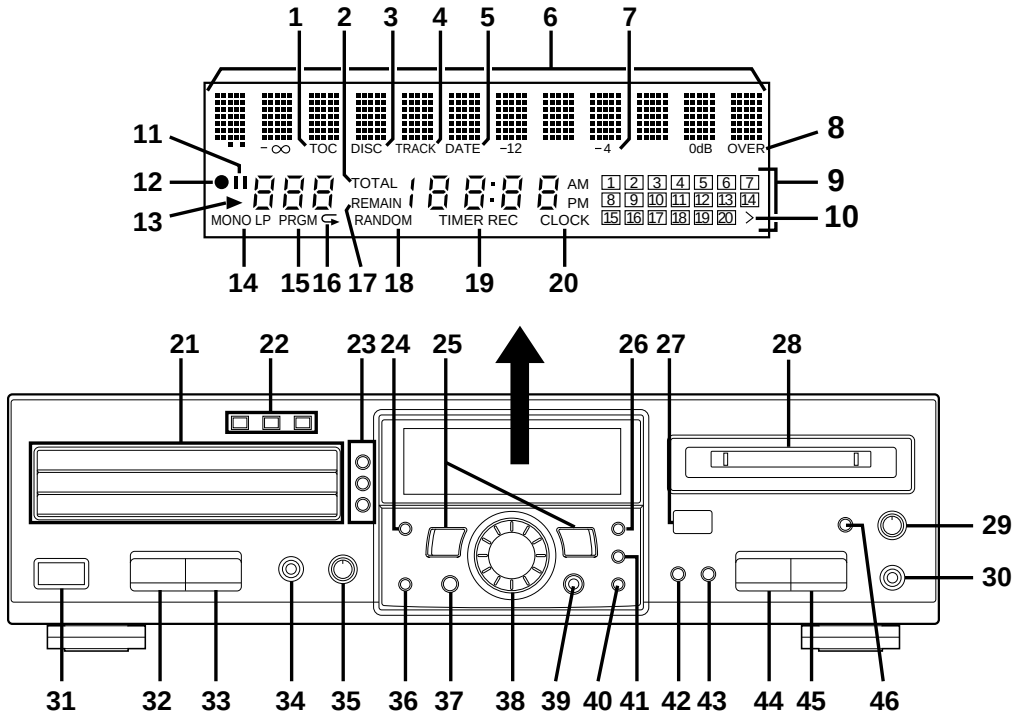
● Timer/clock

Type: Digital clock with date function
Timer: ON/OFF, once a day

Specifications for this model are subject to change without prior notice.

NAME OF PARTS

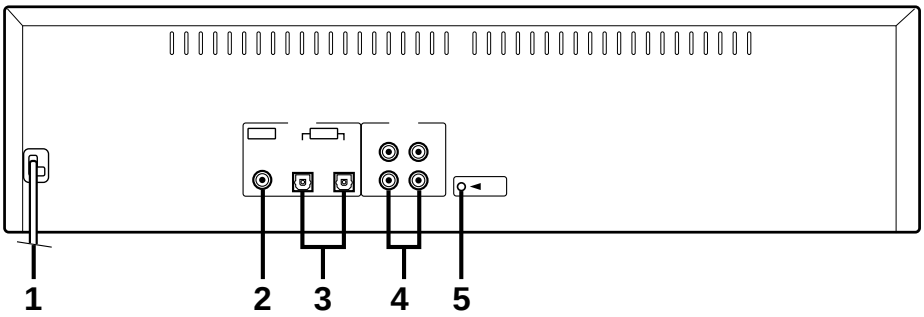
■ Front panel



1. MD TOC Indicator: TOC
2. Total Time Indicator
3. Disc Name Indicator
4. Track Name Indicator
5. Date Indicator
6. Level Meter/Character Information Display
7. Recording Level indicator
8. Recording Level Too High Indicator
9. Music Calender
10. More Tracks Indcator
11. Pause Indicator: ❚❚
12. Record Indicator: ●
13. Play Indicator: ►
14. Monaural Long-Play Mode Indicator
15. Program Indicator
16. Repeat Indicator: ⮌
17. Remaining Time Indicator
18. Random Play Indicator
19. Timer Playback/Timer Recording Indicator
20. Clock Indicator
21. CD Trays
22. CD Direct Play Buttons and Indicators
23. CD Open/Close Buttons: ▲
24. CD Track Select Button
25. Cue/Review Button: ◄◄/►►
26. Display/Character Button
27. Remote Sensor
28. MD Loading Slot
29. Record Level Control
30. Microphone Jack
31. Power Button
32. CD Stop Button: ■
33. CD Play/Pause Button: ►❚❚
34. Headphone Jack
35. Headphone Level Control
36. CD Edit Button
37. Program Button
38. Jog Dial (Next/Previous)
39. Enter Button
40. Delete/Clear/Timer Button
41. Name/TOC Edit Button
42. Input Select Button
43. Record Button: ●
44. MD Stop Button: ■
45. MD Play/Pause Button: ►❚❚
46. MD Eject Button: ▲

■ Rear panel

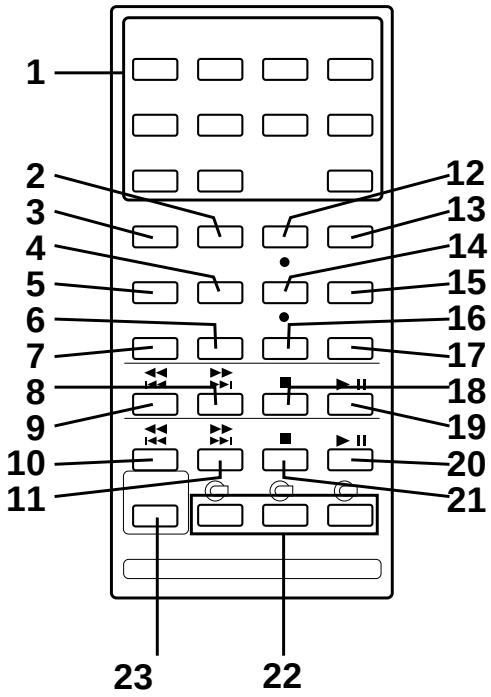
1. AC Power Cord
2. Coaxial Input Jack (Digiral)
3. Optical Input/Output Jacks (Digital)
4. Line Input/Output Jacks (Analogue)
5. Reset Button



MD-R3

■ Names of controls

1. Direct Key Buttons
2. Play Mode Button
3. Music Scan Button
4. Input Select Button
5. Display Button
6. Auto Mark Button
7. Time Button
8. MD Track Up/Cue Button: ▶▶I / ▶▶
9. MD Track Down/Review Button: I◀◀ / ◀◀
10. CD Track Down/Review Button: I◀◀ / ◀◀
11. CD Track Up/Cue Button: ▶▶I / ▶▶
12. Program Button
13. Clear Button
14. Synchro Record Button: ●
15. Record Cancel Button
16. Record Button: ●
17. Record Mode Button
18. MD Stop Button: ■
19. MD Play/Pause Button: ▶II
20. CD Play/Pause Button: ▶II
21. CD Stop Button: ■
22. CD Play buttons: @ 1 - 3
23. Power Button



OPERATION MANUAL

SETTING THE CLOCK

When recording, the date and time are recorded on the Minidisc.

■ Setting the date

1 Press the POWER button to turn the power on and press the TIMER button.

2 Within 10 seconds, turn the jog dial until "TIME ADJUST" appears.

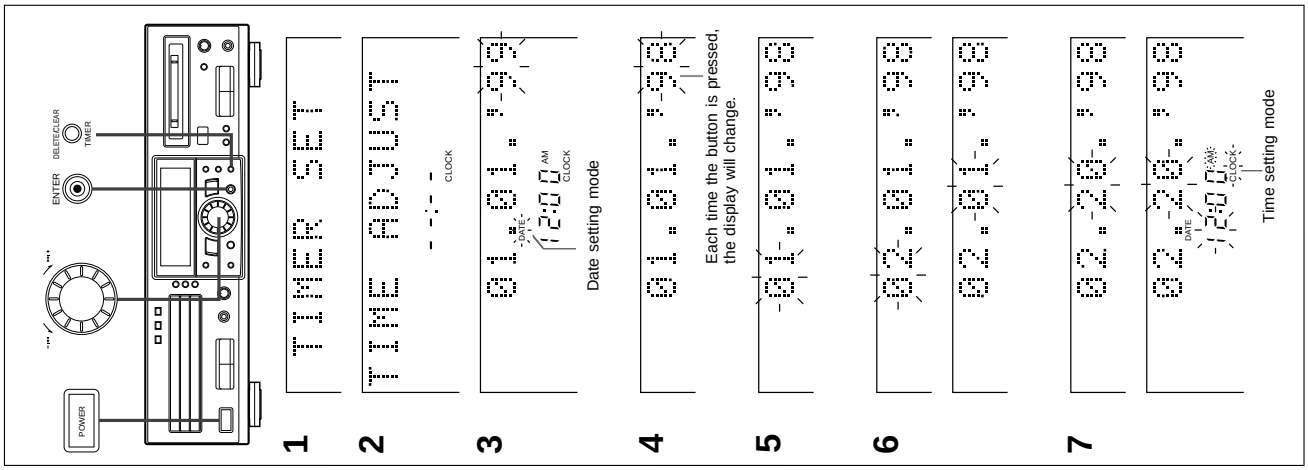
3 Within 10 seconds, press the ENTER button.
- The unit will enter the date setting mode.

4 Set the "year" using the jog dial.
- When you turn the jog dial and let go, the year will change up or down by one.
- The year 2000 or later is set as follows:
  [00] indicates the year 2000.
  [01] indicates the year 2001.
- The range of dates that can be entered is from January 1, 1997 to December 31, 2099.

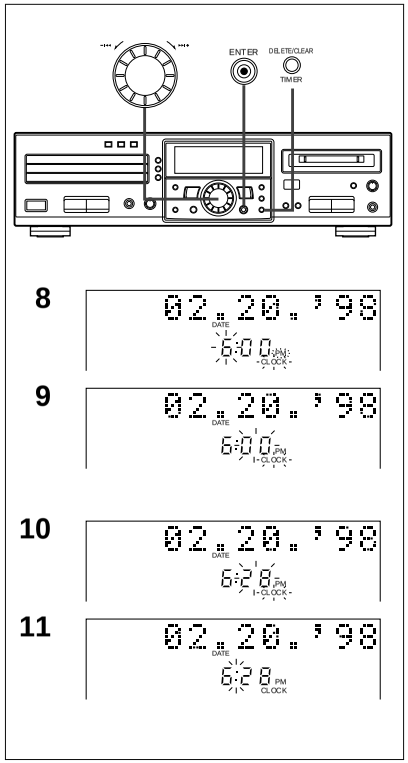
5 Press the ENTER button to set the "year".

6 Set the "month" repeating steps 4 and 5.

7 Set the "day" repeating steps 4 and 5.
- The unit will enter the time setting mode.



(Continued)



■ Setting the time

After step 7, described in the “Setting the date” section

8 Set the “hour” using the jog dial.

- Turn the jog dial left or right, the hour will increase or decrease by one with every click position.
- The clock uses the 12-hour system. Pay attention to the AM or PM indicator on the display.
  AM 0:00 → midnight, PM 0:00 → noon

9 Press the ENTER button to set the “hour”.

10 Adjust the “minute” using the jog dial.

11 Press the ENTER button to set the “minute”.

- When the ENTER button is pressed, the clock will show the correct time.

Checking the date and time

After pressing the TIMER button, turn the jog dial until the date and time are displayed.

Resetting the date and time

See “Setting the clock”.

- Once you have set the date and time, “TIME ADJUST” will not be displayed in step 2. Turn the jog dial to make the date and time appear.
- If you do not need to change the settings, just press the ENTER button without turning the jog dial again.

TROUBLESHOOTING

■ If a problem occurs

If this unit functions abnormally during operation, first check the following items. If the unit continues to function abnormally, or if an abnormality appears other than listed below, turn off the player's power and disconnect the AC power plug, then consult your SHARP dealer or service personnel.

General

SYMPTOM	POSSIBLE CAUSE	REMEDY
The clock is wrong.	Did a power failure occur?	Try setting it again.
When a button is pressed, the unit does not respond.	———	Turn the power off and on again, and then retry the operation.
Radios make unusual noise or the picture on the TV screen is distorted.	When a radio or TV which uses an indoor antenna is placed near the unit, the picture on the TV screen may be distorted or the radio may not function properly.	It is recommended that you use an outdoor antenna.

CD playback

SYMPTOM	POSSIBLE CAUSE	REMEDY
Even though a disc has been loaded, "NO DISC" or "ERROR" is displayed.	The disc is loaded up-side down.	Load the disc with the correct side up.
	The disc is very dirty.	Clean the disc.
Playback stops in the middle of a track, or playback is not performed properly.	The disc does not satisfy the standards.	Load the correct disc.
	Is the unit located near excessive vibrations?	Place the unit on a firm, level surface free from vibration.
Playback sounds are skipped.	Has condensation formed inside the unit?	Remove the disc and leave the power turned on. The unit should function properly in about 1 hour.

MD recording and playback

SYMPTOM	POSSIBLE CAUSE	REMEDY
A recording cannot be made.	Is the MiniDisc protected against accidental erasure?	Slide the accidental erase prevention tab back to its original position.
	Did you try to record on a playback-only MiniDisc?	Replace it with a recordable disc.
	Can you see the “TOC FULL” message in the display?	Put in another recordable disc with recording space on it.
Even though a disc has been loaded, “NO DISC” or “ERROR” is displayed.	Is the disc scratched? Is the unit located near excessive vibration?	Replace the disc. Place the unit on a firm, level surface free from vibration.
Playback stops in the middle of a track, or playback is not performed properly.	Is the unit located near excessive vibrations?	Place the unit on a firm, level surface free from vibration.
Playback sounds are skipped.	Has condensation formed inside the unit?	Remove the disc and leave the power turned on. The unit should function properly in about 1 hour.

Remote control

SYMPTOM	POSSIBLE CAUSE	REMEDY
The remote control does not function or does not operate properly.	The batteries (polarity) are not inserted properly.	Insert properly.
	The batteries inside the remote control are dead.	Replace the batteries.
	The remote control is operated from an incorrect distance or angle.	Operate it within a range of 8" (0.2 m) to 20' (6 m) and within an angle of 15° to either side of center.
	No disc has been loaded.	Load a disc.
The power cannot be turned on from the remote control.	Is the AC power cord plugged in?	Connect the AC power cord.

(Continued)

When an error message is displayed, proceed as follows:

Error messages	Meaning	Remedy
BLANK MD	● Nothing is recorded. (Neither music nor a disc name have been recorded on this MD.)	● Replace the disc with a recorded disc.
Can't COPY	● You tried to record from a disc which you are not allowed to copy.	● Replace it with another disc which you can copy from (regular CD).
Can't EDIT	● A track cannot be edited.	● Change the stop position of the track and then try editing it.
Can't REC	● Recording cannot be performed correctly due to vibration.	● Move the unit away from the source of vibration.
DEFECT	● Since this disc has scratches on it, the recording operation was skipped.	● Replace the disc with another recordable disc.
CH ERROR	● The CD changer is not working properly.	● Press the POWER button to turn off the power, and disconnect the AC power cord from the AC outlet. Then connect the AC power cord, and turn on the power again.
Din UNLOCK	● Incorrect digital signals are input.	● Connect correct digital signals. ● Use the analog input jack.
DISC ERR	● The disc is damaged or there is no TOC on the disc.	● Reload the disc or replace it.
DISC FULL	● The disc is out of recording space.	● Replace the disc with another recordable disc.
EDIT OVER	● There is no space left to record the remainder of the CD.	● Replace the MD with another recordable disc.
FOCUS ERROR	● The proper focus cannot be obtained.	● Reload the MiniDisc.
MD ERROR	● The unit is malfunctioning and will require service.	● Contact your nearest authorized Sharp servicer.
MECHA ERR*	● There is a mechanical problem and the disc is not working properly.	● Press the POWER button to turn off the power, and press the button.
NAME FULL	● The number of characters for the disc name or track name exceeds 100.	● Shorten the disc or track name.
NO DISC	● A disc has not been loaded. ● The disc data cannot be read.	● Load a disc. ● Reload the disc.
NOT AUDIO	● The data recorded on this disc is not audio data.	● Select another track. ● Replace the disc.
PLAYBACK MD	● You tried to record on a playback-only disc. ● The data of disc names and track names are not able to move from playback-only discs.	● Replace it with a recordable MiniDisc. ● Edit only the sound.
PROTECTED	● The MiniDisc is write protected.	● Move the write protection tab back to its original position.
TEMP OVER	● The temperature is too high.	● Press the POWER button to turn off the power. Allow the unit to cool for a while.
TOC ERR*	● The disc has a large amount of damage. ● TOC information cannot be read. ● The MD does not meet the specifications for MDs.	● Replace the disc with another disc.
TOC FULL*	● There is no space left for recording music or character information (track names, disc names, etc.)	● Replace it with another recordable disc.
TOC W ERROR	● The unit is malfunctioning and will require service.	● Contact your nearest authorized Sharp servicer.
U TOC ERR*	● The TOC information on this disc does not meet the MD specifications or it cannot be read.	● Replace it with another disc. ● Erase all the data, and try recording.
U TOC W ERR	● The TOC information could not be created properly due to a mechanical shock or to scratches on the disc.	● Press the POWER button to turn off the power, and try to write the TOC again. (Remove any source of shock or vibration while writing.)
? DISC	● The data contains an error.	● Replace the disc with another disc.
0 0:00	● Music is not being recorded.	● Replace the disc with a recordable disc.

*: Number or symbol

(Continued)

■ Moisture condensation

In the following cases, condensation may form inside the unit.

- Shortly after turning on a heater.
- When the unit is placed in a room where there is excessive steam or moisture.
- When the unit is moved from a cool place to a warm place.

When the unit has condensation inside, the disc signals cannot be read, and the product may not function properly.

- If this happens, remove the disc, and open the disc tray. The condensation should evaporate in approximately 1 hour. The unit will then function properly.

■ If a power failure occurs during recording

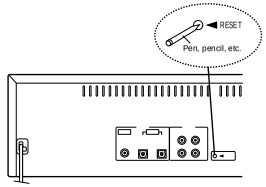
If the AC power plug is disconnected from the AC outlet or a power failure occurs during recording (before the TOC information has been recorded on the disc), the audio portion being recorded at that time will be erased. When a recording is being added to a MiniDisc which already has a recording on it, and the TOC is not updated before the power failure, the added recording will be erased.

- If a power failure occurs or the AC power cord is disconnected for about 10 minutes, the TOC will be written on the disc when power is restored.

■ If a problem occurs

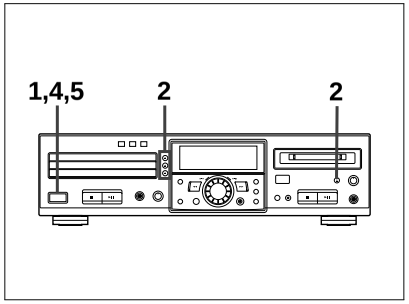
If this product is subjected to strong external interference (mechanical shock, excessive static electricity, abnormal supply voltage due to lightning, etc.) or if it is operated incorrectly, it may malfunction or the display may not function correctly. If such a problem occurs, do the following:

① Unplug the AC power cord from the AC outlet.
② Wait about 20 - 30 seconds and then plug the AC power cord back into the AC outlet.
③ Press the RESET button on the back of the unit.



- When the RESET button is pressed, all of the settings in memory will be erased.
- If strange sounds, smells or smoke come out of the unit or if a foreign object falls into the unit, turn off the power and unplug the AC power cord from the AC outlet, immediately. Contact your nearest authorized Sharp servicer.

TRANSPORTING THE UNIT



When transporting the unit, proceed as follows:

1 Press the POWER button to turn the power on.

2 Remove all discs CDs/MD from the unit.

3 Press the RESET button on the rear of the unit.

- When the RESET button is pressed, all of the settings in memory will be erased.

4 Make sure "TIME ADJUST" appears in the display, then press the POWER button to turn the power on again.

5 Press the POWER button to turn the power off.

6 Make sure the message on the display has changed from "GOOD BYE!" to "TIME ADJUST", and then unplug the AC power cord from the AC outlet.

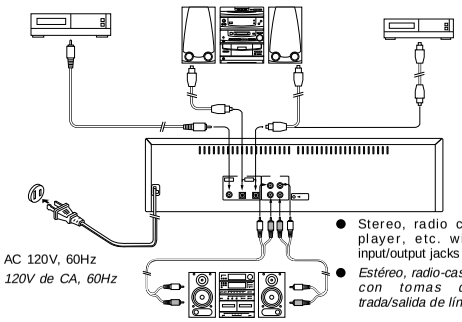
SHARP

MD/CD DECK
MD-R3

Quick-Guide
Guía rápida

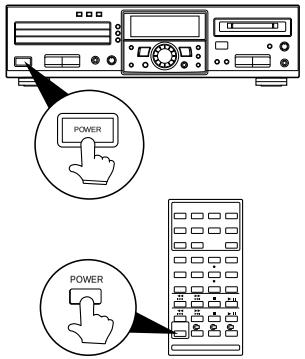
Connection
Conexión

- Equipment with a coaxial jack
- *Equipo con toma coaxial*
- Stereo, DAT, MD recorder, etc. with an optical input/output jack
- *Estéreo, DAT, grabadora de MD, etc. con toma de entrada/salida óptica*
- MD/CD player etc.
- *Reproductor de MD/CD etc.*

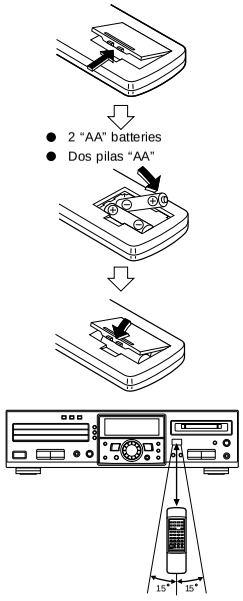


- AC 120V, 60Hz
- *120V de CA, 60Hz*
- Stereo, radio cassette player, etc. with line input/output jacks
- *Estéreo, radio-casete, etc. con tomas de entrada/salida de línea*

Turning the power on and off
Conexión y desconexión de la alimentación



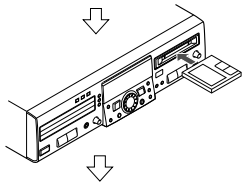
Remote control
Control remoto



- 2 “AA” batteries
- Dos pilas “AA”

Playing a MiniDisc
Reproducción de un minidisco

(MD)



(MD)

(MD)

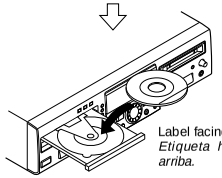
To remove a MiniDisc
Para extraer un minidisco

(MD)

CD playback
Reproducción de discos compactos

(CD)

(CD)



Label facing up.
Etiqueta hacia arriba.

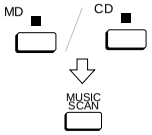
(CD)

(CD)

(CD)

Music scan play
Reproducción con exploración musical

(Remote control)
(Control remoto)



- Starting from the first track, approximately the first 12 seconds at the beginning of each track will be played.
- *Empezando por la primera pista se reproducirán aproximadamente los primeros 12 segundos del principio de coda pista.*

MD / CD

Precaution
Precaución

- Only discs bearing the logos as shown can be played in this unit.
- *En este aparato sólo pueden reproducirse los discos que tengan los logotipos mostrados.*

Recording from a built-in CD (One-touch editing)
Grabación de un reproductor CD incorporado

(CD)

Load the compact discs and recordable MiniDisc.
Inserte los discos compactos y un minidisco grabable.

START

(CD/MD)

Recording from a built-in CD (Track editing)
Grabación de un reproductor CD incorporado (Edición de pistas)

(CD)

Load the compact discs and recordable MiniDisc.
Inserte los discos compactos y un minidisco grabable.

TRACK

TRACK

START

(MD)

Recording sound from an external unit (Sound synchro recording)
Grabación del sonido desde una unidad externa (Grabación sincronizada de sonido)

(MD)

Load the recordable MiniDisc.
Inserte un minidisco grabable.

INPUT SELECT / INPUT SELECT

DIGITAL OPT
DIGITAL COAX
ANALOG

<Analog input only>
<Sólo entrada analógica>

REC LEVEL
MIN MAX

(Remote control)
(Control remoto)

SYNC REC

- Start playing the music you want to record using the other equipment.
- *Inicie la reproducción de la música que desee grabar usando el otro equipo.*

(MD)

DISASSEMBLY

Caution on Disassembly

Follow the below-mentioned notes when disassembling the unit and reassembling it, to keep it safe and ensure excellent performance:

1. Take the minidisc out of the unit.
2. When disassembling the machine, be sure to withdraw the power plug from the socket in advance.
3. When disassemble the parts, remove the nylon band or wire holder as necessary.
   To assemble after repair, be sure to arrange the wires as they were.
   If a screw of different length is fitted to the MD mechanism (the screw of the part to be fitted to the MD mechanism chassis), it may contact the optical pickup, resulting in malfunction.
4. When repairing, pay due attention to electrostatic charges of IC.

STEP	REMOVAL	PROCEDURE	FIGURE
1	Top Cabinet	1. Screw ..... (A1) x5	8-1
2	Rear Panel	1. Screw ..... (B1) x5	8-2
3	MD Unit	1. Screw ..... (C1) x4 2. Flat Cable ..... (C2) x1 3. Socket ..... (C3) x1	8-2
4	Front Panel	1. Screw ..... (D1) x6 2. Flat Cable ..... (D2) x1 3. Socket ..... (D3) x4	8-3
5	CD Changer Block (with CD Servo/ CD Changer PWB)	1. Screw ..... (E1) x4 2. Socket ..... (E2) x4	8-3
6	Main PWB (with Transformer)	1. Screw ..... (F1) x6	8-3
7	Mic PWB	1. Screw ..... (G1) x2	8-4
8	Headphones PWB	1. Screw ..... (H1) x2	8-4
9	Jog Dial	1. Knob ..... (J1) x1 2. Nut ..... (J2) x1	8-4
10	Display PWB/ Switch PWB	1. Knob ..... (K1) x2 2. Screw ..... (K2) x13	8-4
11	Switch PWB	1. Screw ..... (L1) x4	8-4
12	CD Servo PWB (Note1)	1. Screw ..... (M1) x3 2. Socket ..... (M2) x3	9-1
13	CD Changer PWB	1. Screw ..... (N1) x2	9-1
14	Tray Switch PWB	1. Screw ..... (P1) x1	9-1
15	CD Mechanism	1.Screw ..... (Q1) x2 2. Top Board ..... (Q2) x1 3. Disc Holder ..... (Q3) x3 4. Disc Tray ..... (Q4) x3 5. Screw ..... (Q5) x1 6. Mechanism Holder Guide ..... (Q6) x1 7. Mechanism Holder . (Q7) x1 8. Screw ..... (Q8) x4	9-2
16	MD Mechanism Unit	1. Screw ..... (R1) x4	9-3
17	MD Main PWB	1. Screw ..... (S1) x4 2. Socket ..... (S2) x5 3. Flat Cable ..... (S3) x1	9-4
18	MD Mechanism	1. Screw ..... (T1) x4	9-5

Note 1. After removing the connector for the optical pickup from the connector wrap the conducitive aluminum foil around the front end of connector so as to protect the optical pickup from electrostatic damage.

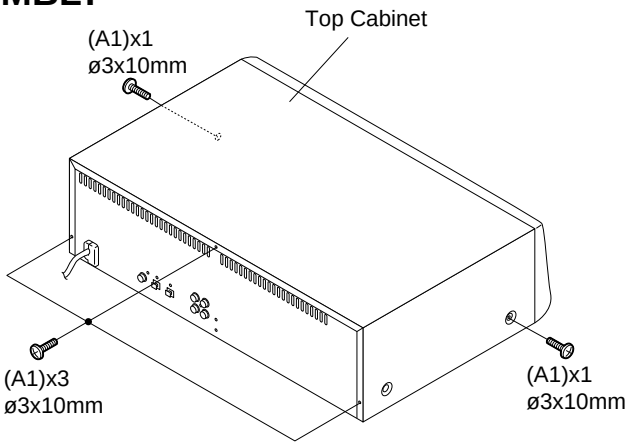


Figure 8-1

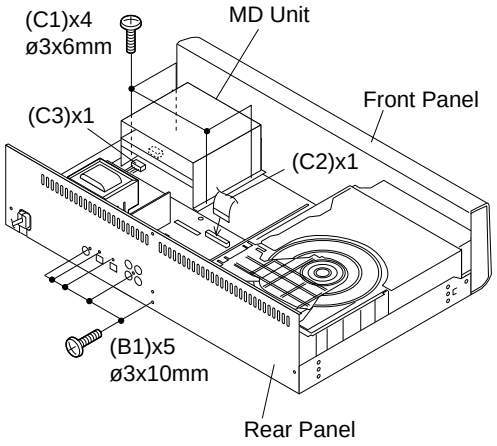


Figure 8-2

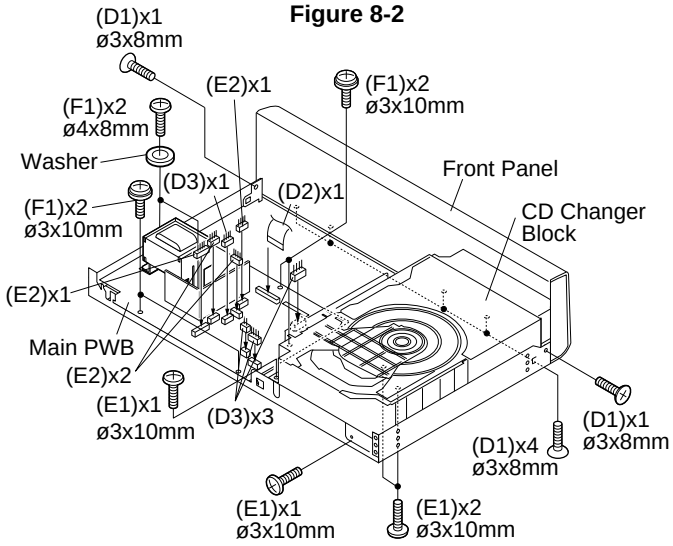


Figure 8-3

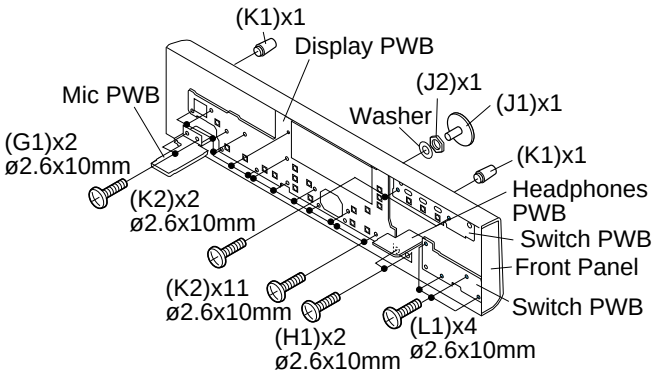


Figure 8-4

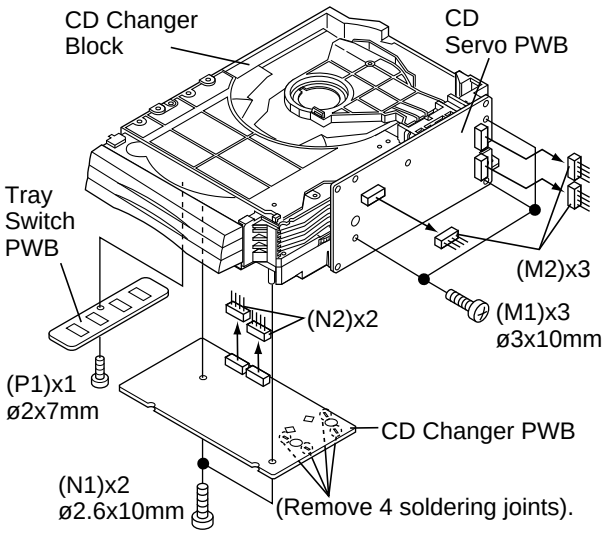
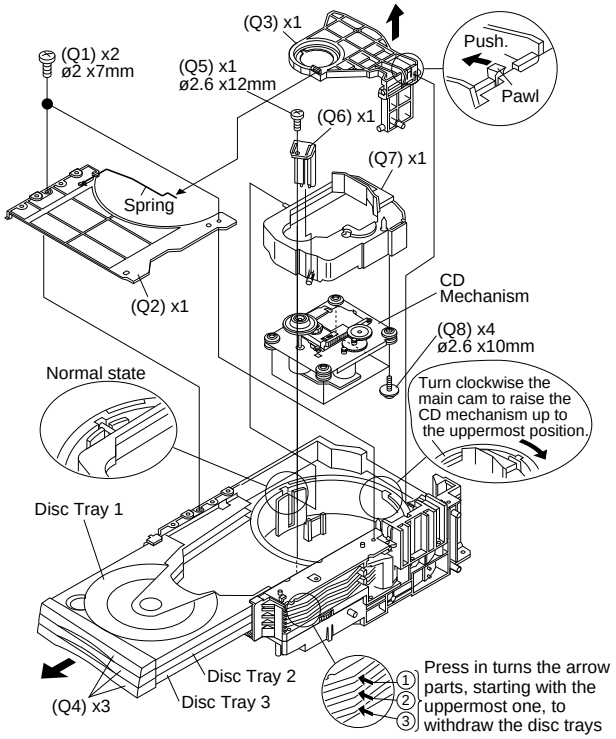
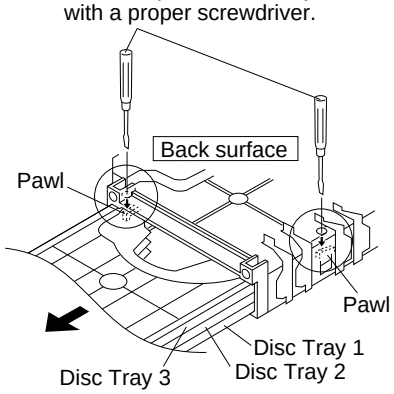


Figure 9-1



Push the pawl of disc tray with a proper screwdriver.



(After drawing out the disc trays 1, 2, and 3, turn over the mechanism unit, push two pawls, and remove successively the three disc trays from the mechanism unit, starting with the disc tray 3. Thereby the CD mechanism shown in the right figure can be removed.)

Figure 9-2

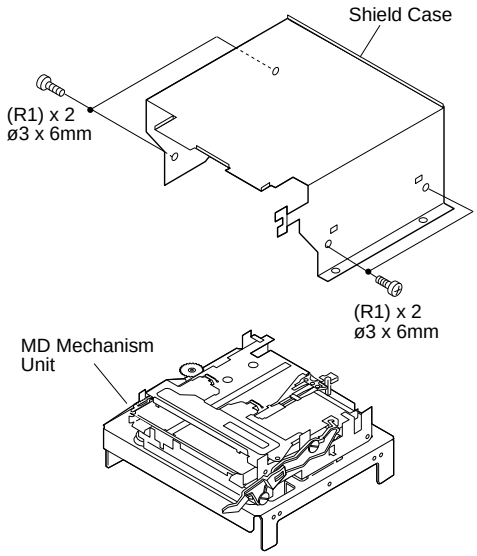


Figure 9-3

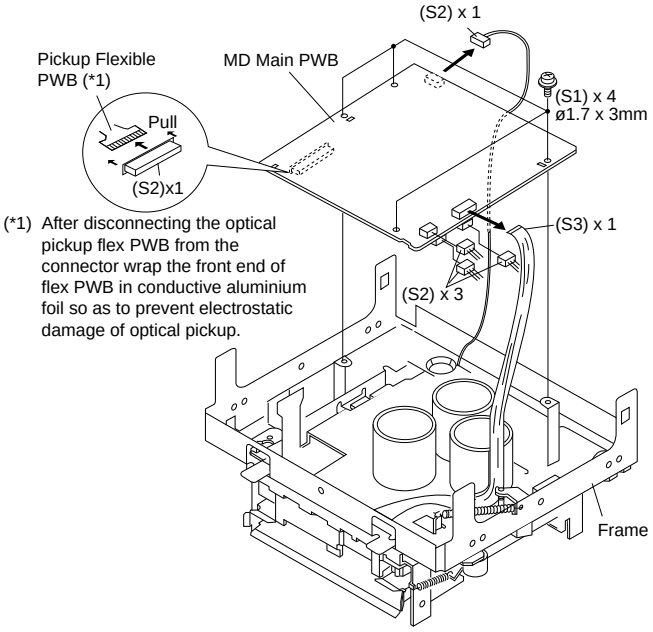

(S2) x 1
Pickup Flexible PWB (*1)
MD Main PWB
(S1) x 4 ø1.7 x 3mm
Pull
(S2)x1
(*1) After disconnecting the optical pickup flex PWB from the connector wrap the front end of flex PWB in conductive aluminium foil so as to prevent electrostatic damage of optical pickup.
(S3) x 1
(S2) x 3
Frame

Figure 9-4

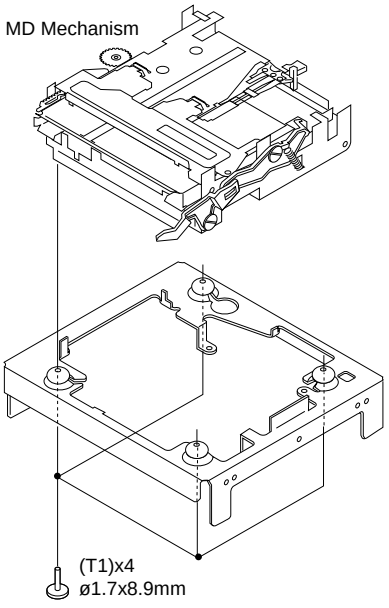


Figure 9-5

• Jog knob replacement procedure

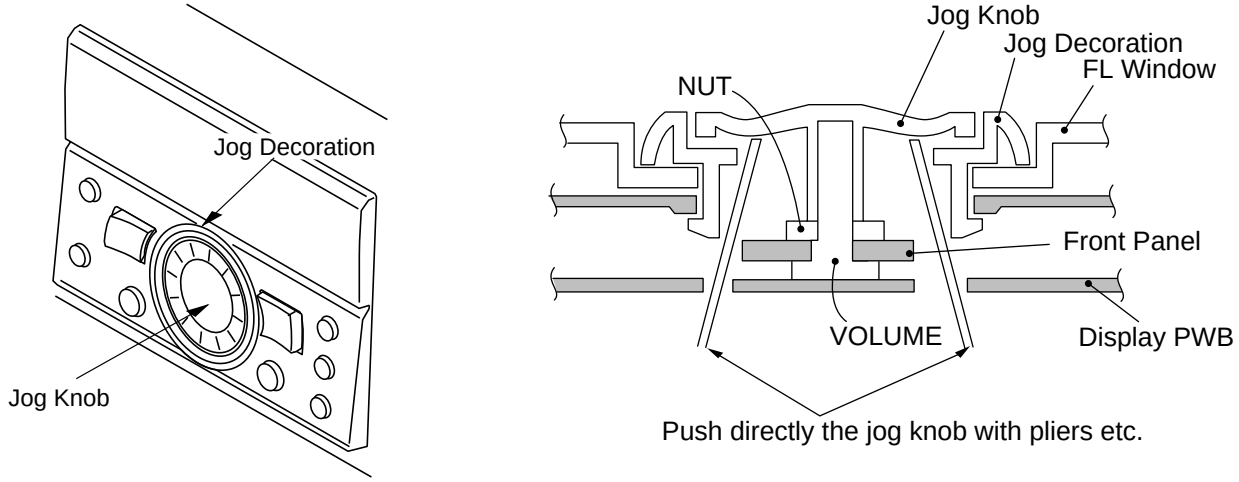
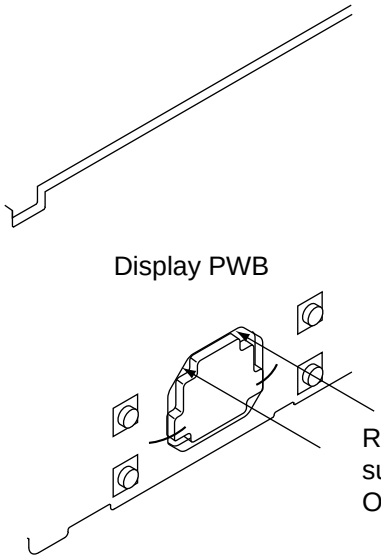


Figure 10-1



Remove the pawl of jog decoration with fine piece such as tweezers, press, and remove the jog knob. Only push out on the jog knob itself.

Figure 10-2

REMOVING AND REINSTALLING THE MAIN PARTS

CD MECHANISM SECTION

For the procedure to remove the CD mechanism from the main unit, refer to Disassembling Procedure, Steps 1, 5, 11, and 14.

How to Remove the optical pickup (See Fig. 11-1.)

1. Remove the screws (A1)x 2 pcs., to remove shaft (A2)x 1 pc.
2. Remove stop washer (A3)x 1 pc., to remove gear (A4)x 1 pc.
3. Remove the optical pickup.

Note:

After disconnecting the optical pickup connector wrap the front end of connector in conductive aluminum foil so as to prevent damage to the optical pickup by static electricity.

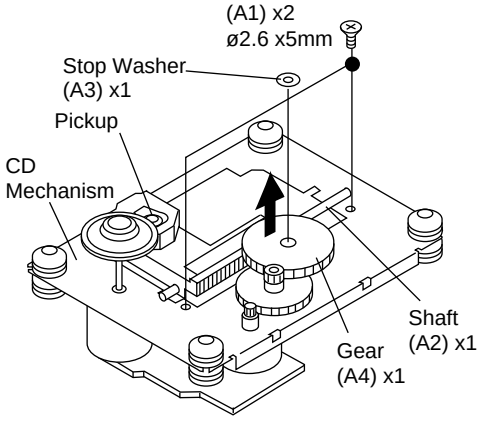


Figure 11-1

How to Remove the tray motor/main cam motor (with CD changer PWB) (See Fig. 11-2.)

1. Remove the front cabinet, and remove the CD changer from the rear cabinet. After that, disassemble as shown in the figure.
2. Remove the belts (B1)x 2 pcs., from the motor side.
3. Remove the screws (B2)x 4 pc.
4. Remove the tray motor and main cam motor.

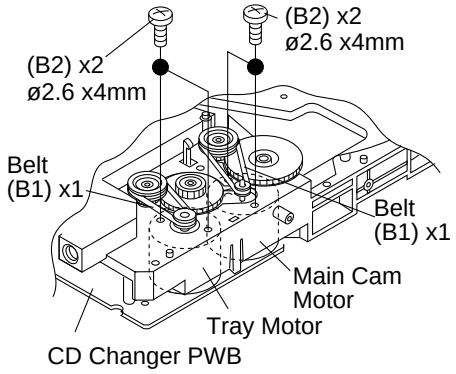
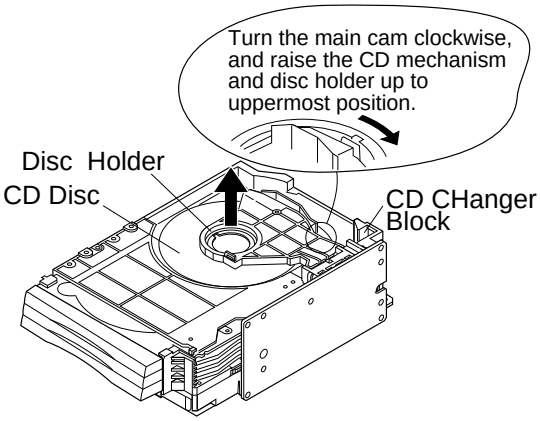


Figure 11-2

How to remove the CD disc (When CD is in playback state) (See Fig. 11-3.)

1. Remove the front cabinet.
2. Remove the CD changer from the rear cabinet.
3. Remove the CD disc as shown in the figure.

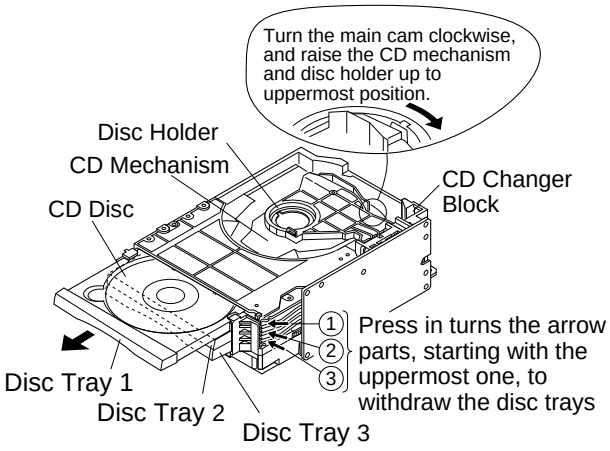

Turn the main cam clockwise, and raise the CD mechanism and disc holder up to uppermost position.
Disc Holder
CD Disc
CD CHanger
Block

(When CD is in playback state.)

Figure 11-3

How to remove the CD disc (When CD exists in the tray) (See Fig. 11-4.)

1. Remove the front cabinet.
2. Remove the CD changer from the rear cabinet.
3. Remove the CD disc from the tray as shown in the figure.


Turn the main cam clockwise, and raise the CD mechanism and disc holder up to uppermost position.
Disc Holder
CD Mechanism
CD Disc
CD Changer
Block
1
2
3
Press in turns the arrow parts, starting with the uppermost one, to withdraw the disc trays
Disc Tray 1
Disc Tray 2
Disc Tray 3

(When CD exists in the tray.)

Figure 11-4

MD MECHANISM SECTION

Perform steps 1, 3, 15 to 17 of the disassembly method to remove the MD mechanism.

How to remove the magnetic head (See Fig. 12-1)

1. Remove the screws (A1) x 1 pc.

Caution:

Take utmost care so that the magnetic head is not damaged when it is mounted.

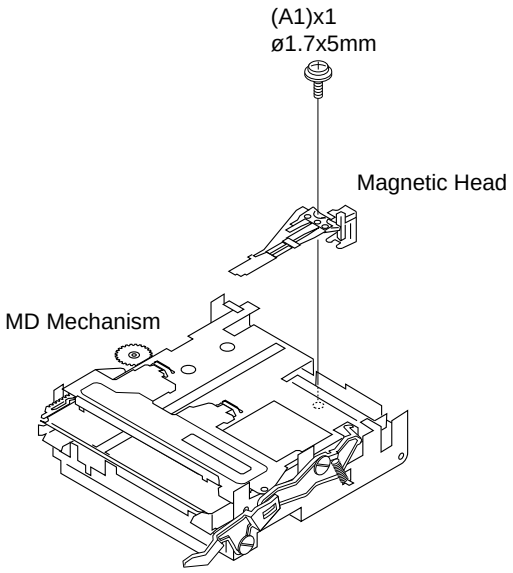


Figure 12-1

How to remove the cartridge holder (See Fig. 12-2)

1. Open the rpller arm lever in the arrow direction, and lower the clamper lever to the rear side.
2. Apply +5V to the red line side of blue connector of loading motor, push the rack gear in the arrow direction to move the cam plate lever until tick is heard.
3. Remove the screw (B1) x1 pc., and the spring (B2) x1 pc., fitted to the holder arm, and shift the cartridge holder to the left side to remove it.

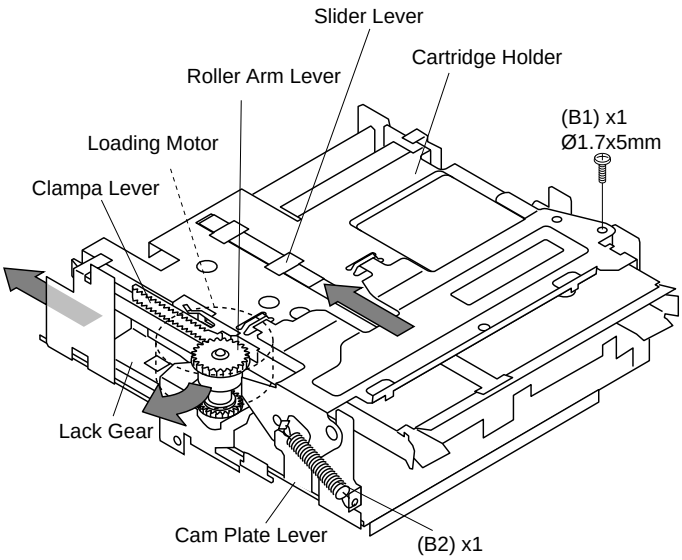


Figure 12-2

How to remove the mechanism switch PWB (See Fig. 12-3)

1. Remove the screws (C1) x 2 pcs., and remove the mechanism switch PWB.

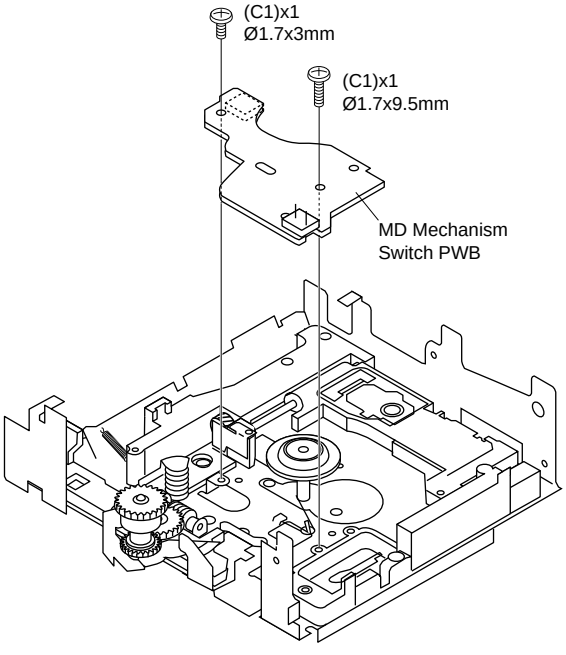


Figure 12-3

How to remove the sled motor/loading motor (See Fig. 13-1)

1. Remove the screws (D1) x 1 pcs., and remove the sled motor/loading motor.

Caution:
Be careful so that the gear is not damaged.
(The damaged gear emits noise during searching.)

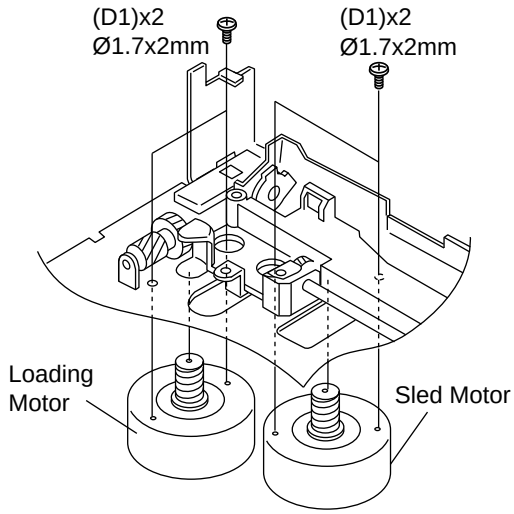


Figure 13-1

How to remove the spindle motor (See Fig. 13-2)

1. Remove the screws (E1) x 3 pcs., and remove the spidle motor.

Caution:
Be careful so that the turntable is not damaged.

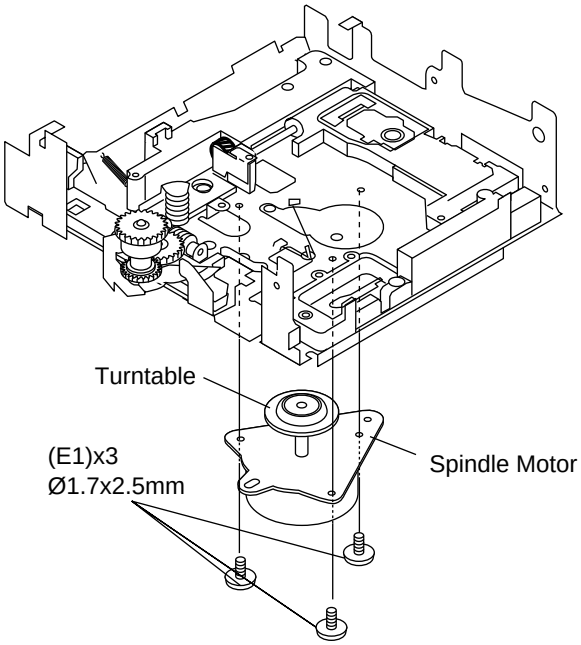


Figure 13-2

How to remove the optical pickup (See Fig. 13-3)

1. Remove the screws (F1) x 3 pcs.

Caution:
Be careful so that the gear is not damaged.
(The damaged gear emits noise during searching.)

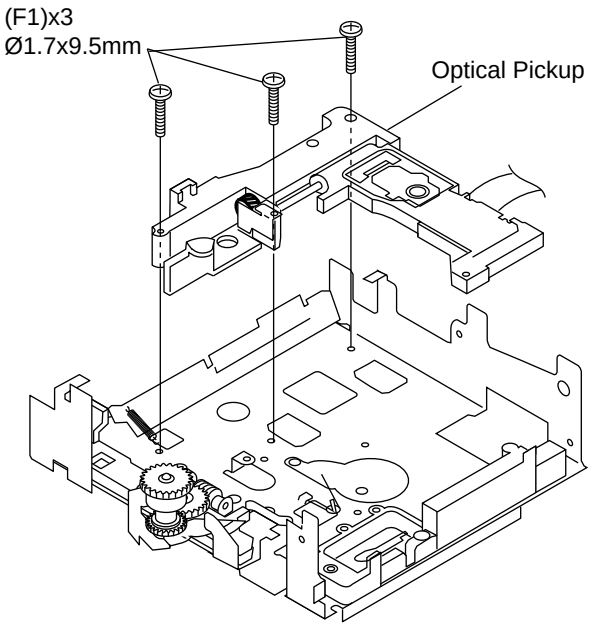


Figure 13-3

ADJUSTMENT

CD SECTION

Extension cable

When making adjustment or checking operation, use the following extension cable as necessary.

Type	Extension cable	Parts No.
A	For CD PWB (TP751, 6-pin)	QCNWK0043AFZZ

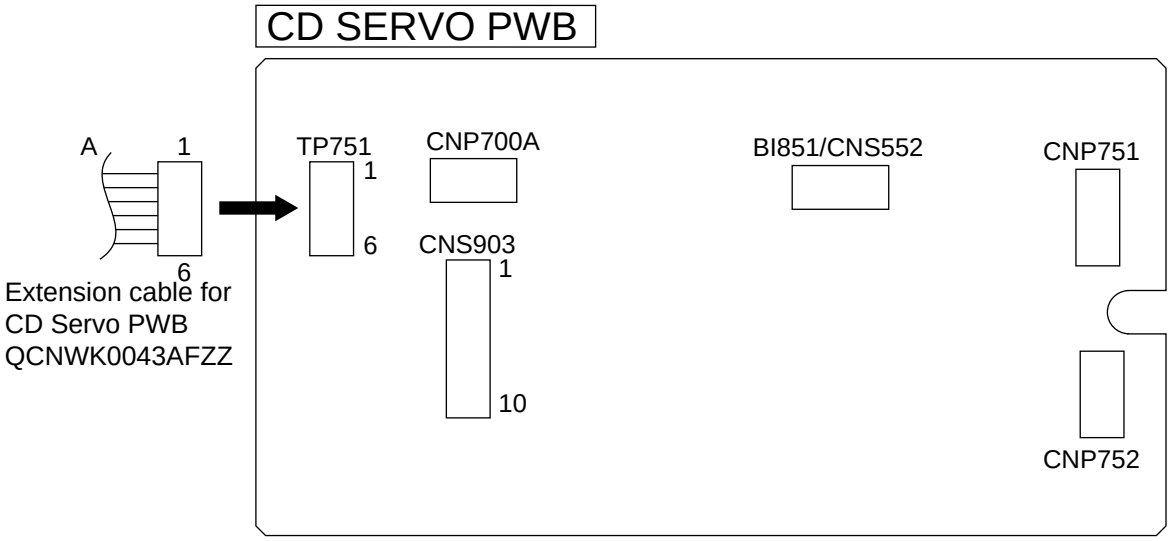


Figure 14

CD circuit adjustment

1. Preparation for adjustment

Setting the CD TEST mode

Test mode	Setting procedure	Remarks	Indication
CD test mode 0	Holding down the CD direct play 1 button and the ENTER butto plug in AC code (or press the RESET switch).	Without IL	CD TEST 0
CD test mode 1	IPress the [CD-PLAY] button.	Laser ON	CD TEST 1 CD test mode 1
CD test mode 2	Press the [CD-PLAY] button. (2nd time)	Focus servo ON	CD TEST 2 CD test mode 2
CD test mode 3	Press the [CD-PLAY] button. (3rd time)	When the spin servo is on, the disc motor rotates.	CD TEST 3 CD test mode 3
CD test mode 4	Press the [CD-PLAY] button. (4th time)	Tracking servo ON	CD TEST 4 CD test mode 4
CD test mode 5	Press the [CD-PLAY] button. (5th time)	Track No. and time are indicated.	CD TEST 5 CD test mode 5

Button operation in CD test mode

1. [STOP] : Specific operation is stopped, resulting in TEST mode waiting state. The pickup slide is kept in stop state.
2. [►►] : The pickup slides toward the external periphery.
3. [◄◄] : The pickup slides toward the internal periphery. When the switch (Pu_IN) is on, the slide is stopped.
4. [DISP] : When this switch is pressed in TEST 4 or later, it is accepted, and the mode is changed directly to TEST 3. (Tracking servo OFF)
6. Hold down [CD-PLAY] for 500 msec : This button is accepted in the TEST waiting state, and mode is changed directly to TEST 5.

Caution

1. Even when the sub-code cannot be read during playing, the [STOP] button must be accepted to perform the STOP operation.
2. When the [CD-EJECT] button is pressed, the tray must be opened after normal STOP operation.

2. Adjusting the servo unit

Set all the half-fixed resistors in the mechanical center position.

Adjustment classification	Adjusting object	Setting/adjusting procedure	Connection of measuring instrument
Set the CD test mode 0, and shift the pickup to the center.			
Set the CD test mode 1. (Make sure that laser lights.)			
After loading the disc set the test mode 2. (Make sure that the focus servo is on. The disc does not rotate but mechanical tone is heard.)			
Set the CD test mode 3. (The spin servo is turned on, and the disc turns.)			
Tracking error balance adjustment	VR751	*1 (Figure 16-1)	Pin 6 (1/2Vcc) and pin 4 (TG1) of TP751
Set the CD test mode 4. (Tracking servo ON)			
Tracking gain adjustment	VR752	Get the same waveform on CH1 and CH2. *2	Pin 4 (TG1), pin 2 (TG2) and pin 6 (1/2Vcc) of TP751 (Relay circuit is used)
Set the test mode 5, and make sure that track No. and time are indicated.			
Apply a black tape to the disc, and play back this part. (Figure 16-2). (It is allowed to apply any mode in addition to test mode.)			
Focus offset adjustment	VR753	*3	Pin 6 (1/2Vcc) and pin 1 (FG1) of TP751 *4
Tracking offset adjustment	VR754	*5	Pin 6 (1/2Vcc) and pin 4 (TG1) of TP751 *6

*1: Taking 1/2Vcc as a reference DC level, make an adjustment to get vertical symmetry of waveform (Figure 16-1) with respect to the reference DC level.
(Amplitude 0.5 to 1.5 Vp-p) (As the optical pickup has been adjusted before shipping, adjustment is required only when adjustment disturbance is found.)

*2: Input oscillation frequency 1.5 kHz, 300 mVrms

*3: Make an adjustment so that the error waveform is minimized (Figure 16-3), noise (track jump sound) ceases during audio output monitoring and clear playback is ensured.

*4: The proper measurement range of oscilloscope is 50 mV, 0.5 ms.
Connect the trigger to the pin 39 (HFD) of IC750, apply coupling on DC (-) slope, and observe waveform in the normal trigger mode.

*5: Make an adjustment so that the error waveform becomes uniform and is minimized (Figure 16-3), noise (track jump sound) ceases during audio output monitoring, clear playback is ensured and sound skip and pause state do not occur.

*6: The proper measurement range of oscilloscope is 0.1V, 0.5 ms. The trigger is the same as stated in the note*4 above.

Reference: If the error waveform contains significant noise and is not clear, observe the waveform, using the low-pass filter (Figure 16-4).

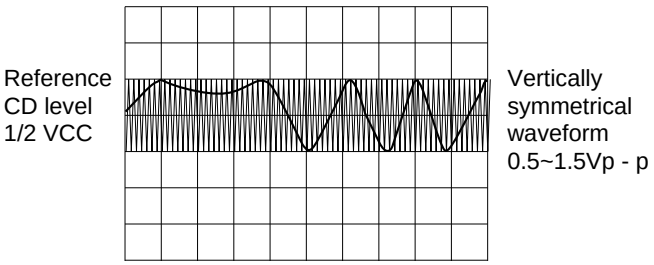


Figure 16-1 TRACKING ERROR BALANCE

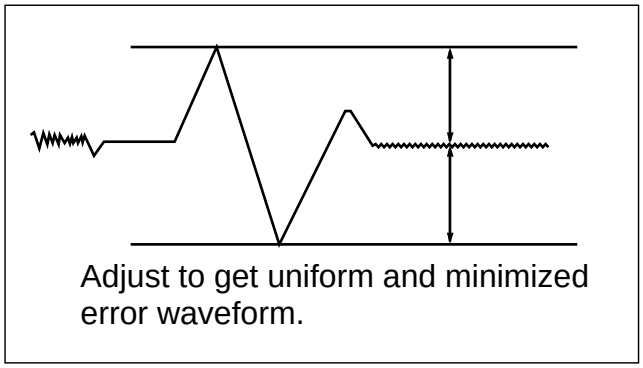
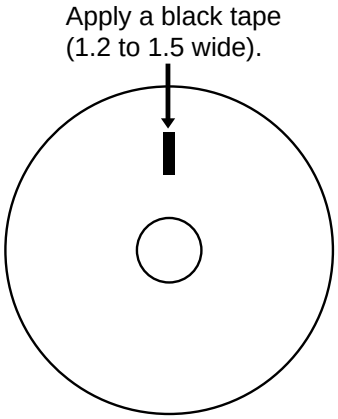


Figure 16-3 FOCUS OFFSET/TRACKING OFFSET



It is allowed use any disc in addition to test disc.
Do not apply the black tape to the initialization part (TOC).

Figure 16-2 FOCUS OFFSET/TRACKING OFFSET

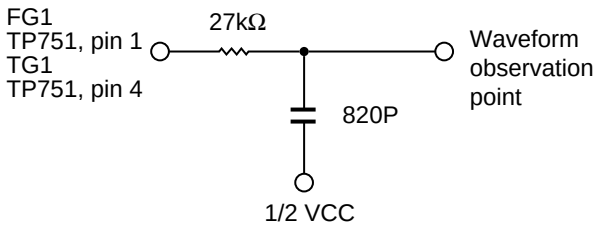


Figure 16-4 LOW-PASS FILTER

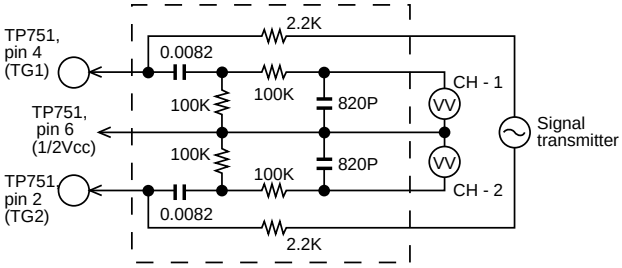


Figure 16-5 TRACKING GAIN RELAY CIRCUIT

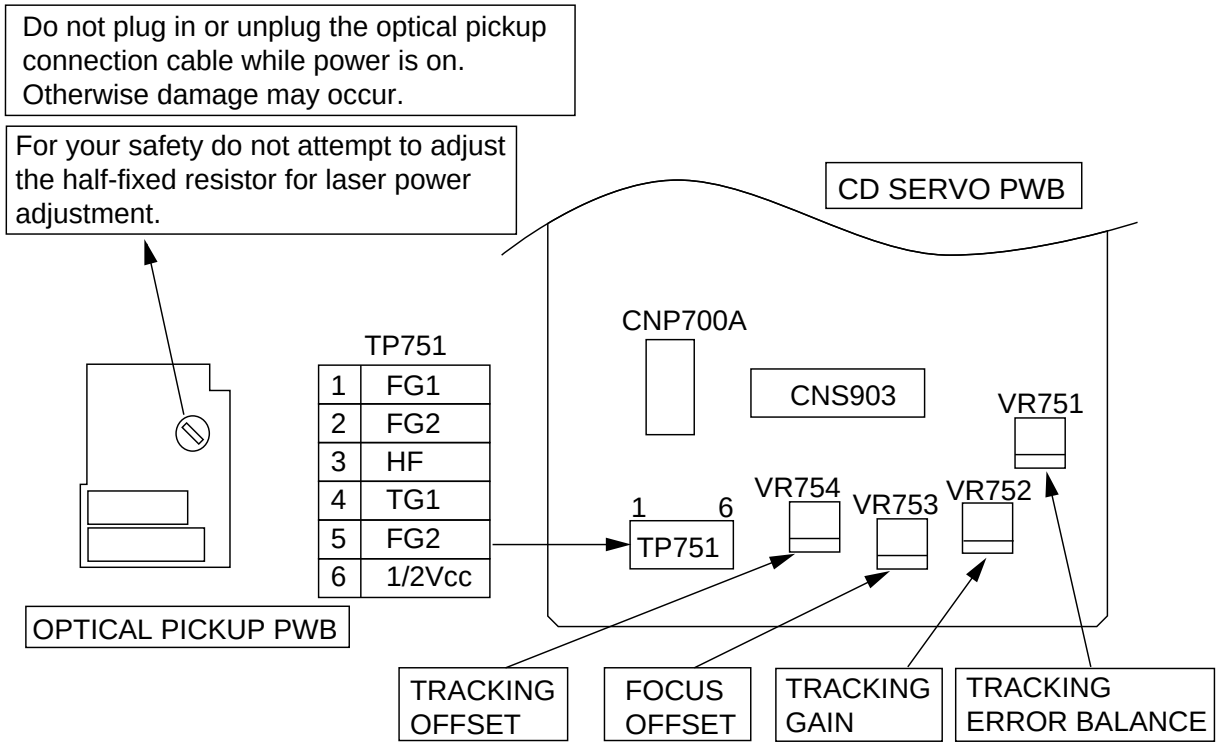


Figure 16-6 ADJUSTMENT POINTS

TEST MODE

1) Mode there are 5 kinds TEST MODE as below.

MODE	PUSH KEY	
A) MD TEST MODE	ENTER	PLAY
B) AUDIO TEST MODE	CUE	REVIEW
C) KEY TEST MODE	CUE	ENTER

2) How to start and quit TEST MODE.

AC Supply On or push RESET KEY after push two keys.
In all TEST MODE. Power Off (POWER KEY) is quit TEST MODE.

3) TEST MODE description.

A) MD TEST MODE (ENTER+PLAY)

Disp. Will be "AUT YOBI". In this mode push PLAY KEY in mean product alignment's auto adjust mode.
(Disp. Will be "AUTO AJST". In this mode push PLAY KEY in mean auto adjust mode by disc condition.
Then push PLAY KEY again. It start play and display will be "a__C__". The 4 digits after "a" are address.
After "C" are error rate.)

PUSH KEY NAME	ACTION
ENTER	Servo adjust mode or menu from adjust mode.
TIMER/DELETE/CLEAR	REC. and P.B. mode or to menu from REC.mode.
NAME/TOC. EDIT	Other menu select.
REC	Reverse menu select.
PLAY	Selected menu execution.
STOP	Execute stop.
CUE	Slide motor (PIC) move to out-side.
REVIEW	Slide motor (PIC) move to in-side.
JOG. UP *1	Manual alignment +1, loading motor on (OUT).
JOG. DOWN *1	Manual alignment -1, loading motor on (IN).
POWER	Test mode quit and power off.
EJECT	Disc eject.
DISPLAY/CHARACTER	Display change.

*1. Jog. Up/Jog. Down key effect for loading motor control when display panel "tsm____e__". (Push STOP KEY some times to disp. "tsm____e__".)

NOTE. MD test are necessary mode only for MD Unit.

B) Audio test mode (CUE+REVIEW)

This mode is key examination mode for a set with in MD-unit.
Automatically set recording mode.
Digital opt. Digital coax and analog are effective.
Test mode start is REC KEY push after disc toc. Read.

REC KEY push

1) Record form analog function by 3 sec time.
2) Record form digital opt. Function by 3 sec time.
3) Record from digital coax. Function by 3 sec time.
4) Record stop.

Note. 1) If digital function is din unclock. Skip to follwing next function.
2) Digital synchronize level is -50 dB.
Analog synchronize level is -47 dB.

C) Key test mode (CUE+ENTER)

This mode is key examination mode for a set with out MD-unit.
This mode indicate destination as below dot display.

MD-R3

KEY TEST

KEY NAME	ILLUMINATE SEGMENT	KEY NAME	ILLUMINATE SEGMENT
TIMER	10 ROW DOT	INPUT SELECT	TOC
DISPLAY	11 ROW DOT	EJECT	7 ROW DOT
REVIEW	ALL	PLAY	4 ROW DOT
CUE	PM	STOP	5 ROW DOT
ENTER	8 ROW DOT	REC	6 ROW DOT
JOG. UP	17 (M.C.)	NAME	9 ROW DOT
JOG. DOWN	18 (M.C.)	TIME	AM
PROGRAM	PRGM		

MD SECTION

1. Preparation for adjustment

Test disc

	Type	Test disc	Part No.
1	High reflection disc	TGYS1 (SONY)	RRCDT0101AFZZ
2	Low reflection disc	Recording minidisc	UDSKM0001AFZZ
3	————	Head Adjusting transparent	RRCDT0103AFZZ

Extension Cable (See Fig. 28-4)

	Type	Part No.
1	Extension PWB for servicing	RUNTK0457AFZZ
2	Extension Connector (2 Pin)	QCNWK0059AFZZ
3	Extension Connector (6 Pin)	QCNWK0107AFZZ
4	Extension Cable (5 Pin)	QCNWK0109AFZZ
3	Extension Cable (28 Pin)	QCNWK0108AFZZ

2. Test mode

Test mode setting method

1. Holding down the ENTER button and MD▶ ❚❚ (PLAY/PAUSE) button, press the RESET button.
   (State Ⓐ is changed to state Ⓑ.)
2. Insert the playback disc 1 (high reflection disc) or recording disc 2 (low reflection disc). (State Ⓒ is set.)
   Thus, the test mode state is set.

Ⓐ tsm ○○○○e○○ : TEST MODE ○○ represents version of MD microcomputer.
TEST STOP state (When the MD■(STOP) button is ressed in the Ⓒ state, the indication Ⓐ is restored. To restore Ⓒ again, press the ENTER button.)
↓
Ⓑ EJECT TEST
↓
Ⓒ AUT YOBI TEST

Entering the specific mode

Whenever the ENTER button is pressed, the mode is changed.

AUTO pre-adjustment → AUTO adjustment → RESULT SUB → RESULT
EEPROM setting ← MANUAL adjustment ← MANUAL pre-adjustment

- **Canceling the test mode**
  - When the RESET button is pressed, the test mode is canceled, and the POWER OFF state is set.
  - If you press the POWER button, the test mode will be can celled after writing into EEPROM and the mode without auto adjustment will be actirated.

• Test Mode

1. EJECT mode	• TEMP setting (of EEPROM setting) • CONTROL setting (of EEPROM setting) • Setting of laser power (record/playback power)
2. AUTO pre-adjustment mode	• Automatic pre-adjustment is performed. (After adjustment the grating adjustment mode is set.) • The adjustment value is output with the aid of system controller interf
3. AUTO adjustment mode	• Automatic adjustment is performed. (After adjustment the grating adjustment mode is set.) • The adjustment value is output with the aid of system controller interface. • Continuous playback is performed. (Error rate indication, jump test)
4. RESULT sub-mode	• The measurement value, set value and calculated value are indicated. • The set value is changed manually (in servo OFF state).
5. RESULT mode (final adjustment)	• The set value (after calculation) is indicated. • The set value is changed manually (in servo OFF state).
6. MANUAL pre-adjustment mode	• RF side manual adjustment is performed. • Focus and tracking signal offset setting is performed.
7. MANUAL adjustment mode	• Focus and tracking signal ATT manual adjustment is performed.
8. EEPROM setting mode	• Various coefficients of digital servo are changed manually. • Temperature detection terminal voltage is measured, and the reference value is determined.
9. TEST-PLAY mode	• Continuous playback from the specified address is performed. • C1 error rate measurement, ADIP error rate measurement.
10. TEST-REC mode	• Continuous recording from the specified address is performed. • Change of record laser output (servo gain is also changed according to laser output)
11. INNER mode	• The position where the INNER switch is turned on is measured.

1. EJECT mode

Step No.	Setting Method	Remarks	Display
Step 1	Testmode EJECT state		[_ _ E J E C T _ _ _]
Step 2	Press oncethe DISPLAY/ CHARACTER button.	Max. power output state	[x p w _ _ _ _ _ _ _]
Step 3	Press once the DISPLAY/ CHARACTER button.	Record power output state	[r p w _ _ _ _ _ _ _]
Step 4	Press once the DISPLAY CHARACTER button.	Playback power output state	[p p w _ _ _ _ _ _ _]
Step 5	Press the DELETE/CLEAR button.	TEMP setting of EEPROM setting (Refer to TEMP setting of EEPROM)	
Step 6	Press the NAME/TOC EDIT button.	CONTROL setting of EEPROM setting (Refer to CONTROL setting of EEPROM)	

● Lead-in switch position measurement mode

Note: Adjust the lead-in switch position to FF85 to FFD2.

1. Loosen the screw (A) x 3 pcs. which fix the mechanism switch PWB.
2. Retighten the screw, pressing the mechanism switch PWB in the arrow direction, and then measure the lead-in switch position again. After position adjustment fix with the three screws (A). (See Fig. 19.)

Note: After tightening the two screws on the PWB apply Screw Lock.

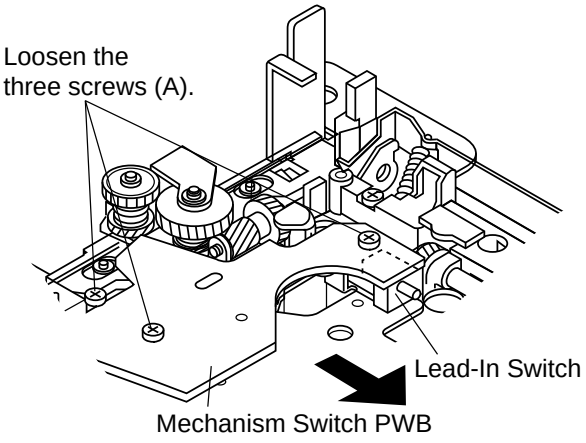


Figure 19

● Forced rotation of loading motor

While the display indication is test mode STOP state or EJECT state, the loading motor can be forcibly rotated by press the JOG UP/DOWN button.

2. AUTO pre-adjustment mode (Low reflection disc only)

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press once the ENTER button.	AUTO pre-adjustment menu	[A U T O]
Step 3	Press once the MD PLAY button. End of adjustment	The slide moves to the innermost periphery, and automatic pre-adjustment is started. • During automatic adjustment ✳✳✳ changes as follows. HAo→RFg→SAg→SBg→PTG→PCH→GTG→GCH→RCG→SEG→RFG→SAG→HAO→HEO→TCO→LAO If adjustment is OK, Step 4. If adjustment is NG, Step 5.	[✳✳✳ : _ _ _ _ _ _]
Step 4	Grating adjustment, adjustment value output Press once the MD STOP button.	 STEP 2	[_ C O M P L E T E _]
Step 5	Adjustment value output Press once the MD STOP button.	 STEP 2 AUTO pre-adjustment menu	[C a n ' t _ A D J .]

• ✳✳✳ : Adjustment name

3. AUTO adjustment mode

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button two times.	AUTO adjustment menu	[A U T O _ A J S T _]
Step 3	Press once the MD PLAY button. End of adjustment	The slide moves to the innermost periphery, and automatic adjustment is started. • In case of high reflection disc ✳✳✳ changes as follows. PEG→HAG •In case of low reflection disc ✳✳✳ changes as follows. PEG→LAG→GCG→GEG→LAG If adjustment is OK, Step 4. If adjustment is NG, Step 7.	[✳✳✳ : _ _ _ _ _ _]
Step 4	Adjustment value output Press the MD PLAY button. Press the MD STOP button.	 STEP 5 STEP 2	[_ C O M P L E T E _]
Step 5	Continuous playback (pit section) Continuous playback (groove section)		[s□□□□c○○○○] [a□□□□c○○○○]
Step 6	Press the DISPLAY button. Press the MD STOP button.	Continuous playback (groove section) STEP 2 AUTO adjustment menu	[a□□□□a○○○○]
Step 7	Adjustment value output Press the MD STOP button.	 STEP 2 AUTO adjustment menu	[C a n ' t _ A D J .]

• ✳✳✳ : Adjustment name, ○○ : Measurement value, □□□□ : Address

4. RESULT sub-mode

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button three times.	RESULT sub-menu	[_ R S T _ Y O B I _]
Step 3	Press once the MD PLAY button.	Indication of set value	[R F G : _ _ _ _ _●]
Step 4	Press once the ENTER button.	Indication of set value	[R C G : _ _ _ _ _●]
Step 5	Press once the ENTER button.	Indication of set value	[R T G : _ _ _ _ _ ●]
Step 6	Press once the ENTER button.	Indication of set value	[G T G : _ _ _ _ _ ●]
Step 7	Press once the ENTER button.	Indication of set value	[P C H : _ _ _ _ ●●]
Step 8	Press once the ENTER button.	Indication of set value	[G C H : _ _ _ _ ●●]
Step 9	Press once the ENTER button.	Indication of set value	[S A G : _ _ _ ●●●]
Step 10	Press once the ENTER button.	Indication of set value	[S B G : _ _ _ ●●●]
Step 11	Press once the ENTER button.	Indication of set value	[S E G : _ _ _ ●●●]
Step 12	Press once the ENTER button.	Indication of set value	[S F G : _ _ _ ●●●]
Step 13	Press once the ENTER button.	Indication of measurement value	[H A O : ○○○ _ _ _]
Step 14	Press once the ENTER button.	Indication of measurement value	[H B O : ○○○ _ _ _]
Step 15	Press once the ENTER button.	Indication of measurement value	[H E O : ○○○ _ _ _]
Step 16	Press once the ENTER button.	Indication of measurement value	[H F O : ○○○ _ _ _]
Step 17	Press once the ENTER button.	Indication of measurement value	[L A O : ○○○ _ _ _]

Step No.	Setting Method	Remarks	Display
Step 18	Press once the ENTER button.	Indication of measurement value	[L B O : ○○○ _ _ _]
Step 19	Press once the ENTER button.	Indication of measurement value	[L E O : ○○○ _ _ _]
Step 20	Press once the ENTER button.	Indication of measurement value	[L F O : ○○○ _ _ _]
Step 21	Press once the ENTER button.	Indication of measurement value	[T C O : _ ○○ _ _ _]
Step 22	Press once the ENTER button.	Indication of adjustment error sequence No.	[Y O B : _ □□ _ _ _]
Step 23	Press once the ENTER button.	Indication of adjustment status	[D I F : _ □□ _ _ _]
Step 24	Press once the ENTER button.	Indication of pre-adjustment not completed (00)/completed (4B)	[A D J : _ □□ _ _ _]
Step 25	Press once the MD STOP button.	RESULT sub-menu state	[_ R S T _ Y O B I _]

• ○○ : Measurement value, ●● : Adjustment value, □□ : Other various informations
• ressing the REC button causes reversing.
• When the jog key is turned upward while the setting is displayed, the setting increases, and a new setting is stored in RAM.
• When the jog key is turned downward while the setting is displayed, the setting increases, and a new setting is stored in RAM.

5. RESULT mode (final adjustment)

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button four times.	RESULT menu	[_ R E S U L T _ _ _]
Step 3	Press once the MD PLAY button.	Indication of set value	[H A G : _ _ _ ●●●]
Step 4	Press once the ENTER button.	Indication of set value	[H B G : _ _ _ ●●●]
Step 5	Press once the ENTER button.	Indication of set value	[L A G : _ _ _ ●●●]
Step 6	Press once the ENTER button.	Indication of set value	[L B G : _ _ _ ●●●]
Step 7	Press once the ENTER button.	Indication of set value	[P E G : _ _ _ ●●●]
Step 8	Press once the ENTER button.	Indication of set value	[P F G : _ _ _ ●●●]
Step 9	Press once the ENTER button.	Indication of set value	[G E G : _ _ _ ●●●]
Step 10	Press once the ENTER button.	Indication of set value	[G F G : _ _ _ ●●●]
Step 11	Press once the ENTER button.	Indication of set value	[G C G : _ _ _ _ ●●]
Step 12	Press once the MD STOP button.	RESULT menu state	[_ R E S U L T _ _ _]

• ●● : Set value
• ressing the REC button causes reversing.
• When the jog key is turned upward while the setting is displayed, the setting increases, and a new setting is stored in RAM.
• When the jog key is turned downward while the setting is displayed, the setting increases, and a new setting is stored in RAM.

6. MANUAL auxiliary adjustment mode (only low reflection disc)

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button five times.	MANUAL auxiliary adjustment mode	[_ M N U _ Y O B I _]
Step 3	Press once the MD PLAY button.	Initial setting → Temperature measuring mode (△△: Zone No.)	[T M P : _ △△ _ _ _]
Step 4	Press once the ENTER button.	Offset "0" setting → A signal offset tentative measurement	[H A o : △△△ ✳ _ _]
Step 5	Press once the ENTER button.	B signal offset tentative measurement	[H B o : △△△ ✳ _ _]
Step 6	Press once the ENTER button.	E signal offset tentative measurement	[H E o : △△△ ✳ _ _]
Step 7	Press once the ENTER button.	F signal offset tentative measurement	[H F o : △△△ ✳ _ _]
Step 8	Press once the ENTER button.	Offset tentative measurement → Laser ON	[L O N : _ _ _ _ _ _]
Step 9	Press once the ENTER button.	Innermost periphery move → RF side FG rough adjustment	[R F g : △△△ ✳ _ ●]
Step 10	Press once the ENTER button.	Focus ATT (A signal) tentative setting	[S A g : △△△○○○]
Step 11	Press once the ENTER button.	Focus ATT (B signal) tentative setting	[S B g : △△△○○○]
Step 12	Press once the ENTER button.	RF side pit section TG adjustment	[P T G : △△△ ✳ _ ●]
Step 13	Press once the ENTER button.	Pit section COUT level setting	[P C H : △△△ _ ○○]
Step 14	Press once the ENTER button.	Outer periphery move → RF side groove TG adjustment	[G T G : △△△ ✳ _ ●]
Step 15	Press once the ENTER button.	Groove section COUT level setting	[G C H : △△△ _ ○○]
Step 16	Press once the ENTER button.	RF side TCRS adjustment	[R C G : △△△ ✳ _ ●]
Step 17	Press once the ENTER button.	Tracking ATT (E signal) setting	[S E G : △△△○○○]
Step 18	Press once the ENTER button.	Tracking ATT (F signal) setting	[S F G : △△△○○○]
Step 19	Press once the ENTER button.	Indication of tracking EFMIO measurement	[G M I : △△△ _ _ _]
Step 20	Press once the ENTER button.	RF side pit section FG adjustment	[R F G : △△△ ✳ _ ●]
Step 21	Press once the ENTER button.	Focus ATT (A signal) setting	[S A G : △△△○○○]

Step No.	Setting Method	Remarks	Display
Step 22	Press once the ENTER button.	Focus ATT (B signal) setting	[S B G : △△△○○○]
Step 23	Press once the ENTER button.	Offset "0" setting → A signal offset measurement	[H A O : △△△ ✳ _ _]
Step 24	Press once the ENTER button.	B signal offset measurement	[H B O : △△△ ✳ _ _]
Step 25	Press once the ENTER button.	E signal offset measurement	[H E O : △△△ ✳ _ _]
Step 26	Press once the ENTER button.	F signal offset measurement	[H F O : △△△ ✳ _ _]
Step 27	Press once the ENTER button.	TCRS signal offset measurement	[T C O : _ △△ ✳ _ _]
Step 28	Press once the ENTER button.	A signal offset measurement	[L A O : △△△ ✳ _ _]
Step 29	Press once the ENTER button.	B signal offset measurement	[L B O : △△△ ✳ _ _]
Step 30	Press once the ENTER button.	E signal offset measurement	[L E O : △△△ ✳ _ _]
Step 31	Press once the ENTER button.	F signal offset measurement	[L F O : △△△ ✳ _ _]

• △△△ : Measurement value, ● : Set value, ○○○ : Account value
• If the jog key upward/downward is pressed during setting indication, the setting increases/decreases, and the new setting is stored in RAM.
• If the REC button is pressed, the setting returns step by step excepting the following case.
A signal offset (HAO) → Offset tentative setting → RF side FG adjustment (RFG)
RF side TCRS adjustment (RCG) → RF side groove TG adjustment (GTG)
RF side groove TG adjustment (GTG) → Innermost periphery move → RF side pit section adjustment (PTG)
RF side pit TG adjustment (PTG) → RF side FG rough adjustment (RFg) → Laser lighting (LON)
Laser lighting (LON) → Offset "0" setting → A signal offset tentative measurement (HAo)
If the measurement value is within the OK range, " ✳ " appears on the 8th character.

7. MANUAL adjustment mode

High reflection disc

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button six times.	MANUAL adjustment menu	[_ M N U _ A J S T _]
Step 3	Press once the MD PLAY button.	Initial setting → Temperature measuring mode (△△: Zone No.)	[T M P : _ △△ _ _ _]
Step 4	Press once the ENTER button.	Laser ON	[L O N : _ _ _ _ _ _]
Step 5	Press once the ENTER button.	Innermost periphery move → Tracking ATT (E signal) setting	[P E G : △△△○○○]
Step 6	Press once the ENTER button.	Tracking ATT (F signal) setting	[P F G : △△△○○○]
Step 7	Press once the ENTER button.	Indication of tracking EFMIO measurement	[P M I : △△△ _ _ _]
Step 8	Press once the ENTER button.	Focus ATT (A signal) setting	[H A G : △△△○○○]
Step 9	Press once the ENTER button.	Focus ATT (B signal) setting	[H B G : △△△○○○]

• If the MD STOP button is pressed while the MANUAL adjustment menu is displayed, the state is changed to the TEST mode STOP state.
• If the REC button is pressed, the setting returns step.

Low reflection disc

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button six times.	MANUAL adjustment menu	[_ M N U _ A J S T _]
Step 3	Press once the MD PLAY button.	Initial setting → Temperature measuring mode (△△: Zone No.)	[T M P : _ △△ _ _ _]
Step 4	Press once the ENTER button.	Laser ON	[L O N : _ _ _ _ _ _]
Step 5	Press once the ENTER button.	Innermost periphery move → Tracking ATT (E signal) setting	[P E G : △△△○○○]
Step 6	Press once the ENTER button.	Tracking ATT (F signal) setting	[P F G : △△△○○○]
Step 7	Press once the ENTER button.	Indication of tracking EFMIO measurement (pit section)	[P M I : △△△ _ _ _]
Step 8	Press once the ENTER button.	Focus ATT (A signal) setting	[L A g : △△△○○○]
Step 9	Press once the ENTER button.	Focus ATT (B signal) setting	[L B g : △△△○○○]
Step 10	Press once the ENTER button.	Outside periphery move → Track closs setting	[G C G : △△△ _ ○○]
Step 11	Press once the ENTER button.	Tracking ATT (E signal) setting	[G E G : △△△○○○]
Step 12	Press once the ENTER button.	Tracking ATT (F signal) setting	[G F G : △△△○○○]
Step 13	Press once the ENTER button.	Indication of tracking EFMIO measurement (groove section)	[G M I : △△△ _ _ _]
Step 14	Press once the ENTER button.	Focus ATT (A signal) setting	[L A G : △△△○○○]
Step 15	Press once the ENTER button.	Focus ATT (B signal) setting	[L B G : △△△○○○]

• If the MD STOP button is pressed while the MANUAL adjustment menu is displayed, the state is changed to the TEST mode STOP state.
• If the REC button is pressed, the setting returns step by step excepting the following case.
Track closs ATT setting (GTG) → Innermost periphery move → Focus ATT (B signal) setting (LBg)

8. EEPROM setting mode

a) Focus setting

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button seventimes.	EEPROM setting menu	[E E P R O M _ S E T]
Step 3	Press once the MD PLAY button.	Focus setting menu	[_ _ F o c u s _ _ _]
Step 4	Press once the ENTER button.	Focus system loop filter gain constant setting	[F G _ _ _ _ _ _ ◆◆]
Step 5	Press once the ENTER button.	Focus system loop filter f characteristic constant 1 setting	[F F 1 _ _ _ _ _ ◆◆]
Step 6	Press once the ENTER button.	Focus system loop filter f characteristic constant 2 setting	[F F 2 _ _ _ _ _ ◆◆]
Step 7	Press once the ENTER button.	FZC oscillation histerisis level setting a	[F Z H L E V _ _ ◆◆]
Step 8	Press once the ENTER button.	Comparison level setting (normal) in case of FOK generation	[F O K L E V n _ ◆◆]
Step 9	Press once the ENTER button.	Comparison level setting in case of FOK generation (when focus is "ON")	[F O K L E V f _ ◆◆]
Step 10	Press once the ENTER button.	LPF coefficient setting (normal) in case of FOK generation	[F O K L P F n _ ◆◆]
Step 11	Press once the ENTER button.	LPF coefficient setting in case of FOK generation (when focus is "ON")	[F O K L P F f _ ◆◆]
Step 12	Press once the ENTER button.	Waiting time setting in case of auto-focus retraction	[W A I T f _ _ _ ◆◆]

• ◆◆ : Setting volue
• Pressing the REC button causes reversing.
• When the jog key is turned upward while the setting is displayed, the setting increases, and a new setting is stored in LSI.
• When the jog key is turned downward while the setting is displayed, the setting increases, and a new setting is stored in LSI.

b) Spindle setting

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button seven times.	EEPROM setting menu	[E E P R O M _ S E T]
Step 3	Press once the MD PLAY button.	Focus setting menu	[_ _ F o c u s _ _ _]
Step 4	Press once the ENTER button.	Spindle setting menu	[_ S p i n d l e _ _]
Step 5	Press once the ENTER button.	Spindle system loop filter gain constant setting (Until tracking servo ON)	[S P G _ _ _ _ _ ◆◆]
Step 6	Press once the ENTER button.	Spindle system loop filter gain constant setting (After tracking servo ON, inner periphery)	[S P G _ i n _ _ ◆◆]
Step 7	Press once the ENTER button.	Spindle system loop filter gain constant setting (After tracking servo ON, center)	[S P G _ m i d _ ◆◆]
Step 8	Press once the ENTER button.	Spindle system loop filter gain constant setting (After tracking servo ON, outside periphery)	[S P G _ o u t _ ◆◆]
Step 9	Press once the ENTER button.	Spindle system loop filter f characteristic constant 1 setting	[S P 1 _ _ _ _ _ ◆◆]
Step 10	Press once the ENTER button.	Spindle system loop filter f characteristic constant 2 setting	[S P 2 _ _ _ _ _ ◆◆]
Step 11	Press once the ENTER button.	Spindle system loop filter f characteristic constant 3 setting	[S P 3 _ _ _ _ _ ◆◆]
Step 12	Press once the ENTER button.	Spindle system loop filter f characteristic constant 4 setting	[S P 4 _ _ _ _ _ ◆◆]
Step 13	Press once the ENTER button.	Spindle system loop filter f characteristic constant 5 setting	[S P 5 _ _ _ _ _ ◆◆]
Step 14	Press once the ENTER button.	Spindle drive output limitter setting	[S P D L I M _ _ ◆◆]

• ◆◆ : Setting volue
• Pressing the REC button causes reversing.
• When the jog key is turned upward while the setting is displayed, the setting increases, and a new setting is stored in LSI.
• When the jog key is turned downward while the setting is displayed, the setting increases, and a new setting is stored in LSI.

c) Tracking setting

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button seven times.	EEPROM setting menu	[E E P R O M _ S E T]
Step 3	Press once the MD PLAY button.	Focus setting menu	[_ _ F o c u s _ _ _]
Step 4	Press the ENTER button two times.	Tracking setting menu	[_ T r a c k i n g _]
Step 5	Press once the MD PLAY button.	Tracking system loop filter gain constant setting	[T G _ _ _ _ _ _ ◆◆]
Step 6	Press once the ENTER button.	Spindle system loop filter f characteristic constant 1 setting	[T F 1 _ _ _ _ _ ◆◆]
Step 7	Press once the ENTER button.	Spindle system loop filter f characteristic constant 2 setting	[T F 2 _ _ _ _ _ ◆◆]
Step 8	Press once the ENTER button.	Setting of tracking system servo mode 4	[S V C N T 4 _ _ ◆◆]
Step 9	Press once the ENTER button.	Tracking deceleration pulse level setting (for one line jump)	[T R B L V 0 _ _ ◆◆]
Step 10	Press once the ENTER button.	Tracking deceleration pulse level setting (for 10 line jump)	[T R B L V t _ _ ◆◆]

Step No.	Setting Method	Remarks	Display
Step 11	Press once the ENTER button.	Tracking kick pulse level setting (for one line jump)	[T R K L V 0 _ _ ◆◆]
Step 12	Press once the ENTER button.	Tracking kick pulse level setting (for 10 line jump)	[T R K L V t _ _ ◆◆]
Step 13	Press once the ENTER button.	Tracking drive pulse width setting (for one line jump)	[T D P W o _ _ _ ◆◆]
Step 14	Press once the ENTER button.	Tracking drive pulse width setting (for 10 line jump)	[T D P W t _ _ _ ◆◆]
Step 15	Press once the ENTER button.	Tracking slip stop time setting (for one line jump)	[S L C T 0 _ _ _ ◆◆]
Step 16	Press once the ENTER button.	Tracking slip stop time setting (for 10 line jump)	[S L C T t _ _ _ ◆◆]
Step 17	Press once the ENTER button.	Tracking slip stop time setting (move)	[S L C T m _ _ ◆◆]
Step 18	Press once the ENTER button.	TCRS comparison level 1 for high reflection	[T C R S C I P _ ◆◆]
Step 19	Press once the ENTER button.	Comparison level in case of COUT generation (playback)	[C O T L V p _ _ ◆◆]
Step 20	Press once the ENTER button.	Comparison level in case of COUT generation (pecord)	[C O T L V r _ _ ◆◆]
Step 21	Press once the ENTER button.	Auto-move waiting time setting	[W A I T m_ _ _ ◆◆]

• ◆◆ : Setting volue
• Pressing the REC button causes reversing.
• When the jog key is turned upward while the setting is displayed, the setting increases, and a new setting is stored in LSI.
• When the jog key is turned downward while the setting is displayed, the setting increases, and a new setting is stored in LSI.

d) Sled setting

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m◯◯◯◯ e ◯◯]
Step 2	Press the ENTER button seven times.	EEPROM setting menu	[E E P R O M _ S E T]
Step 3	Press once the MD PLAY button.	Focus setting menu	[_ _ F o c u s _ _ _]
Step 4	Press the ENTER button three times.	Sled setting menu	[_ _ _ S l e d _ _ _]
Step 5	Press once the MD PLAY button.	Slide system loop filter gain constant setting	[S L G _ _ _ _ _ ◆◆]
Step 6	Press once the ENTER button.	Slide system loop filter f characteristic constant 2 setting	[S L 2 _ _ _ _ _ ◆◆]
Step 7	Press once the ENTER button.	Sled output limitter setting	[S L D L I M _ _ ◆◆]
Step 8	Press once the ENTER button.	Slide servo output dead zone level setting	[S L D L E V _ _ ◆◆]
Step 9	Press once the ENTER button.	Slide kick pulse level setting (forced move)	[S L K L V k _ _ ◆◆]
Step 10	Press once the ENTER button.	Slide kick pulse level setting (for 10 lines jump auxiliary use)	[S L K L V t _ _ ◆◆]
Step 11	Press once the ENTER button.	Slide kick pulse level setting (move)	[S L K L V m _ _ ◆◆]

• ◆◆ : Setting volue
• Pressing the REC button causes reversing.
• When the jog key is turned upward while the setting is displayed, the setting increases, and a new setting is stored in LSI.
• When the jog key is turned downward while the setting is displayed, the setting increases, and a new setting is stored in LSI.

1. TEMP • Input temperature correction.

• Correct the TEMP. data according to the PWB ambient temperature, and input it.
• Since the temperature rise causes error of temperature sensing part (RF IC), the following requirements must be observed.
① Perform the TEST mode without mechanical connection.
② This operation must be performed quickly after power is supplied.

Data correction table

Ambient temperature (°C)	Temperature correction
12.2 ~ 15.8	-3
15.9 ~ 19.6	-2
19.7 ~ 23.2	-1
23.3 ~ 26.8	0
26.9 ~ 30.7	+1
30.8 ~ 34.3	+2
34.4 ~ 37.9	+3

EEPROM record value = Microcomputer measurement value + Correction

* EEPROM record value
  Value to be measured by the microcomputer at +25°C
* Microcomputer measurement value
  Value to be measured by the microcomputer at specific temperature
* Correction value
  Correction value for conversion to measurement value at +25°C (see the table shown left)

e) TEMP setting

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button seven times.	EEPROM setting menu	[E E P R O M _ S E T]
Step 3	Press once the MD PLAY button.	Focus setting menu	[_ _ F o c u s _ _ _]
Step 4	Press the ENTER button four times.	TEMP setting menu	[_ _ _ T e m p _ _ _]
Step 5	Press once the MD PLAY button.	TEMP reference value setting	[T E M P _○○_ ◆◆]

Step No.	Setting Method	Remarks	Display
Step 1	EJECT state (or mechanism-less state)		[_ _ E J E C T _ _ _]
Step 2	Press the DELETE/CLEAR button.	TEMP reference value setting	[T E M P _○○_ ◆◆]

• ◆◆ : Setting volue, ○○ **:** Measurement value
• When the jog key is turned upward while the setting is displayed, the setting increases, and a new setting is stored in LSI.
• When the jog key is turned downward while the setting is displayed, the setting increases, and a new setting is stored in LSI.

f) CONTROL setting

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the ENTER button seven times.	EEPROM setting menu	[E E P R O M _ S E T]
Step 3	Press once the MD PLAY button.	Focus setting menu	[_ _ F o c u s _ _ _]
Step 4	Press the ENTER button five times.	CONTROL setting menu	[_ C o n t r o l _ _]
Step 5	Press once the MD PLAY button.	CONTROL 1 setting	[C O N T R L 1_ ◆◆]
Step 6	Press once the ENTER button.	CONTROL 2 setting	[C O N T R L 2_ ◆◆]
Step 7	Press once the ENTER button.	Setting of spin kick level in MOVE state	[S P K L E V m_ ◆◆]
Step 8	Press once the ENTER button.	Setting of readjustment interval time (minutes)	[A D J T T M_ _ ◆◆]
Step 9	Press once the ENTER button.	Setting of equalizer coefficients A and D (high reflection)	[H D E Q A D_ _ ◆◆]
Step 10	Press once the ENTER button.	Setting of equalizer coefficients A and D (low reflection pit)	[L D E Q A D_ _ ◆◆]
Step 11	Press once the ENTER button.	Setting of equalizer coefficients A and D (low reflection groove)	[G D E Q A D_ _ ◆◆]
Step 12	Press once the ENTER button.	Setting of equalizer coefficients B and C (high reflection)	[H D E Q B C_ _ ◆◆]
Step 13	Press once the ENTER button.	Setting of equalizer coefficients B and C (low reflection pit)	[L D E Q B C_ _ ◆◆]
Step 14	Press once the ENTER button.	Setting of equalizer coefficients B and C (low reflection groove)	[G D E Q B C_ _ ◆◆]
Step 15	Press once the ENTER button.	Setting of autolevel slicer gain (high reflection)	[H A L S G_ _ _ ◆◆]
Step 16	Press once the ENTER button.	Setting of autolevel slicer gain (low reflection pit)	[L A L S G_ _ _ ◆◆]
Step 17	Press once the ENTER button.	Setting of autolevel slicer gain (low reflection groove)	[G A L S G_ _ _ ◆◆]
Step 18	Press once the ENTER button.	Setting of autolevel slicer offset (high reflection)	[H A L S O F_ _ ◆◆]
Step 19	Press once the ENTER button.	Setting of autolevel slicer offset (low reflection pit)	[L A L S O F S_ ◆◆]
Step 20	Press once the ENTER button.	Setting of autolevel slicer offset (low reflection groove)	[G A L S O F S_ ◆◆]

Step No.	Setting Method	Remarks	Display
Step 1	EJECT state (or mechanism-less state)		[_ _ E J E C T _ _ _]
Step 2	Press the NAME/TOC EDIT button.	CONTROL 1 setting	[C O N T R L 1_ ◆◆]
Step 3	Press once the ENTER button.	CONTROL 2 setting	[C O N T R L 1_ ◆◆]

• ◆◆ : Setting volue
• When the jog key is turned upward while the setting is displayed, the setting increases, and a new setting is stored in LSI.
• When the jog key is turned downward while the setting is displayed, the setting increases, and a new setting is stored in LSI.
• CONTROL 1
  Pit 7 : High frequency superposition ON/OFF in record mode (0:OFF, 1:IN)
  Pit 6~4 : Play start SD number (30 to 100 sector, 10 sector step)
  Pit 2~0 : High speed jump over-run (384 to 830 lines, 64 lines step)
• CONTROL 2
  Pit 4~0 : EEPROM version (a~)

g) ADJUST setting

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state (or continuous record/playback state or specific menu state of other mode)		[t s m○○○○ e ○○]
Step 2	Input the B2h command 7 times, including NOP (or input once the B2h command and input once the A8h command) The specific setting is read from EEPROM.	EEPROM setting menu	[E E P R O M _ S E T]
Step 3	A2h command input	Focus setting menu	[_ _ F o c u s _ _ _]
Step 4	Input the B2h command 6 times, including NOP.	CONTROL setting menu	[_ A D J U S T _ _ _]
Step 5	A2h command input	COUT level calculation cofficient setting	[C O K _ _ _ _ _ ◆◆]
Step 6	B2h command input	Focus system reference value setting	[F A T _ _ _ _ _ ◆◆]
Step 7	B2h command input	Tracking system reference value setting	[T A T _ _ _ _ _ ◆◆]
Step 8	B2h command input	Track cross system reference value setting	[C A T _ _ _ _ _ _ ◆◆]
Step 9	B2h command input	Focus balance correction value setting	[F A B _ _ _ _ _ _ ◆◆]
Step 10	B2h command input	Tracking ATT shift value setting	[S T R _ _ _ _ _ _ ◆◆]
Step 11	B2h command input	Focus ATT shift value setting	[S F S _ _ _ _ _ _ ◆◆]
Step 12	B2h command input	TCRS ATT shift value setting	[S T C _ _ _ _ _ _ ◆◆]

◆◆: Setting volue

- Input of A8h command results in reversing.
- When the F3h command is input in the setting item indication state, the setting increases, and the new setting is et in LSI.
- When the F4h command is input in the setting item indication state, the setting increases, and the new setting is et in LSI.
- When the F3h/F4h command is input continuously, continuous change occurs with 100 ms cycle.
- When the A7h command is input in the EEPROM setting menu state, the state is changed to TEST mode stop state.
- When the A7h command is input in the ADJUST setting menu state, the state is changed to EEPROM setting menu state.
- When the A7h command is input in the specific setting item indication state, the state is changed to the ADJUST setting menu state.

9. TEST-PLAY mode

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the TIMER/DELETE/CLEAR button.	TEST-PLAY menu	[T E S T _ P L A Y _]
Step 3	Press once the DISPLAY/ CHARACTER button. Press once the MD PLAY button.	ADRES setting (Target address initial value is indicated) During search the search output is set to "H", and it is returned to "L" when continuous playback is started.	[A D R E S _ 0 0 5 0]
Step 4	Continuous playback (pit section) Continuous playback (groove section)	(Address + C1 error indication) (Address + C1 error indication)	[s □□□□ c ○○○○] [a □□□□ c ○○○○]
Step 5	Press once the DISPLAY/ CHARACTER button.	(Address + ADIP error indication)	[a □□□□ a ○○○○]
Step 6	Press once the MD STOP button.	TEST-PLAY menu	[T E S T _ P L A Y _]

- If the MD STOP button is pressed while the TEST-PLAY menu is displayed, TEST mode STOP state is set.
- If the MD PLAY button is pressed while the TEST-PLAY menu is displayed, continuous playback is started from the current pickup position.
- Whenever the TIMER/DELETE/CLEAR button is pressed in the address setting mode, the address changes as follows.
  0 0 5 0 → 0 3 C 0 → 0 7 0 0 → 0 8 A 0 → 0 0 5 0 → ……
- Whenever the DISPLAY/CHARACTER button is pressed in the address setting mode, the digit which is changed with - ⏮ / ⏭ + changes as follows.
  0 0 5 0 → 0 0 5 0 → 0 0 5 0 → 0 0 5 0 → ……
- The digit of address which has been specified with - ⏮ / ⏭ + and DISPLAY/CHARACTER button in the address setting mode is set to +01H/ -01H.
  * If the - ⏮ / ⏭ + button is held down, the setting changes continuously with 100 ms cycle.
- If the NAME/TOC EDIT button is pressed in the continuous playback mode, the number of jump lines changes as follows.
  1 line → 10 line → 400 line → 1 line → ……
  * After the number of jump lines is indicated for one second, the address indication is restored. [▲▲▲T R _ J U M P]
- If the - ⏮ / ⏭ + button is pressed in the continuous playback mode, the specified number of lines is jumped in the FWD/REV direction.
  * If the - ⏮ / ⏭ + button is held down, the setting changes with 100 ms cycle.

• Whenever the DISPLAY/CHARACTER button is pressed in the continuous playback mode, the indication changes as follows.
  * Pit section Continuous playback (SUBQ address indication + C1 error indication) remains.
  * Groove section Continuous playback (ADIP address indication + C1 error indication) remains.

↓

Continuous playback (ADIP address indication + ADIP error indication) remains.

↓

Continuous playback (ADIP address indication + C1 error indication) remains.

↓

⋮

• □□□□ : Adress, ○○○○ : Error late, ▲▲▲ : Jump lines

10. TEST-REC mode

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the TIMER/DELETE/CLEAR button.	TEST-REC menu	[T E S T _ R E C _ _]
Step 3	Press once the DISPLAY/ CHARACTER button.	ADRES setting (indication of address initial value)	[a 0 0 5 0 _ p w ▽▽]
Step 4	Press once the MD PLAY button.	During search the search output pin 11 is set to "H", and it is (returned on "L" when continuous playback is started.Address + C1 error indication) Continuous recording	[a □□□□ p w ▽▽]
Step 5	Press once the MD STOP button.	TEST-REC menu	[T E S T _ R E C _ _]

• If the MD STOP button is pressed while the TEST-PLAY menu is displayed, TEST mode STOP state is set.
• If the MD PLAY button is pressed while the TEST-REC menu is displayed, continuous record is started from the current pickup position.
• Whenever the TIMER/DELETE/CLEAR button is pressed in the address setting mode, the address changes as follows.
  0 0 5 0 → 0 3 C 0 → 0 7 0 0 → 0 8 A 0 → 0 0 5 0 → ……
• Whenever the DISPLAY/CHARACTER button is pressed in the address setting mode, the digit which is changed with - I◀◀ / ▶▶I + changes as follows.
  0 0 5 0 → 0 0 5 0 → 0 0 5 0 → 0 0 5 0 → ……
• The digit of address which has been specified with - I◀◀ / ▶▶I + and DISPLAY/CHARACTER button in the address setting mode is set to +01H/ -01H.
  * If the - I◀◀ / ▶▶I + button is held down, the setting changes continuously with 100 ms cycle.
• If the JOG button is pressed in TEST-REC mode and continuous record mode, the laser record power changes. (Servo gain changes also according to the record power.)
• □□□□ : Adress, ▽▽ : Laser power cord

11. INNER mode

Step No.	Setting Method	Remarks	Display
Step 1	Testmode STOP state		[t s m○○○○ e ○○]
Step 2	Press the NAME/TOC EDIT button.	INNER menu	[_ _ I N N E R _ _]
Step 3	Press once the MD PLAY button.	INNER switch position measurement (SUBQ address and C1 error are also indicated.)	[s □□□□ c ○○○○]
Step 4	Press once the MD STOP button.	INNER menu	[_ _ I N N E R _ _]

• □□□□ : Adress
• Press the MD STOP button while the INNER menu is displayed, to shift to the TEST mode STOP state.

● Mechanism Adjustment

1. Optical pickup grating inspecting method

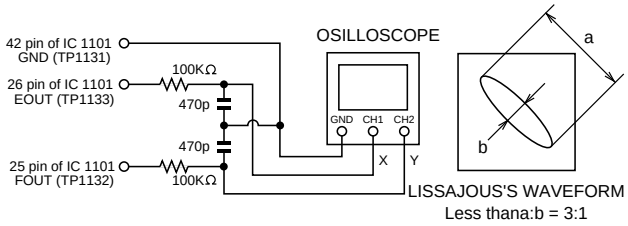


Figure 28-1 Optical Pickup Grating Deviation Measuring Method

After the automatic adjustment is performed in the AUTO mode (test mode) with the aid of high refection MD disc ("COMPLATE" is displayed), the Lissajous's waveform (x-y) is adjusted.

1. Slightly loosen the 3 screws of spindle moto, and maken an adjustment, observing the Lissajous's waveform.
2. After adjustment tighten the screw in arder of ① , ② , ③ .

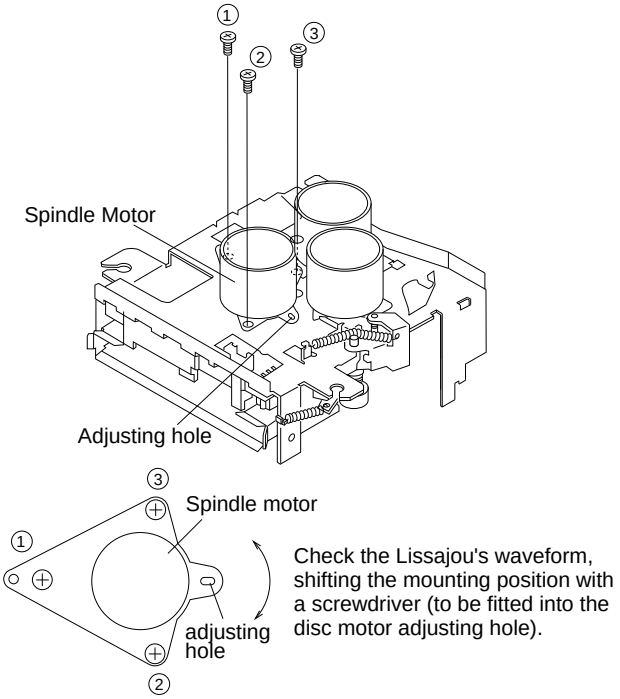


Figure 28-2

2. Jitter adjustment and checking method

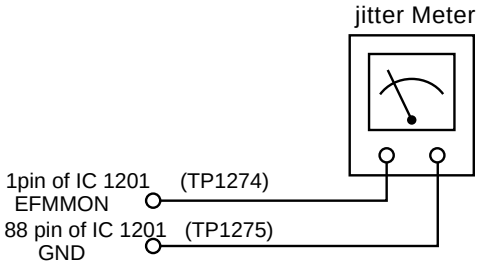


Figure 28-3 Jitter connection diagram

After performing automatic adjustment in AUTO mode of TEST mode using the low reflection MD disc, check this jitter in pit continuous playback and groove continuous playback mode.

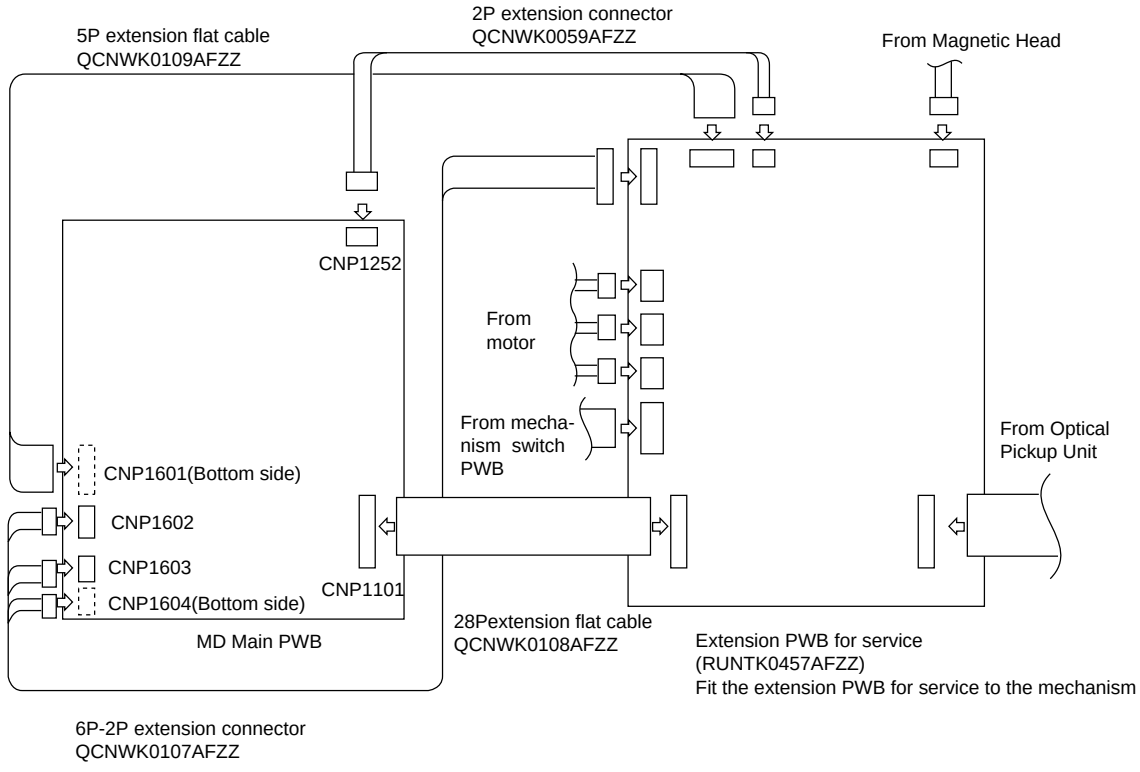


Figure 28-4

EXPLANATION OF ERROR DISPLAY

Error display	Errors	Corrective action
Can't REC	• Defect occurred successively 10 times during REC-PLAY. • As a result of occurrence of defect during REC-PLAY the recordable cluster became zero. • Adress is unreadable. REC state connot be set for 20 seconds although retry is repeated.	• Check that the disc is free from flaw, dust and fingerprint. Check whether there is any black spot. Check for disc disalignment and run-out.
Can't COPY	• The following judgement is made according to the channel status of digital signal which was input from D-IN during REC-PAUSE or REC-PLAY. (1) Other than audio signal (2) Other than signals of home-use appliances (3) Copy NG due to alternation of copy bit in CD.	• Check whether CD is copy-inhibited one. (An exabple: CD-R)
Din UNLOCK	• The digital signal which was input from D-IN during REC-PAUSE, REC-PLAY or CD FUNC playback caused the following. (1) PLL of digital IN was unlocked.	• Check whether there is any abnormality in the D-IN signal line.
TOC FULL	• There were no areas to record music or character infomation.(music name, disc name, etc.) during REC-PLAY. • When an attempt to start is made, recordable area does not remain.	• Replace the disc with a recording/ playback disc in which an area to register UTOC remains.
UTOC ERR R	• FTNO > LTNO • FTNO ≠ 0 or 1 • UTOC recorded on disc could not be read.	• UTOC data is not normal. Replace the disc with other disc.
UTOC ERR A	• Start address > End address disc with other disc.	• UTOC data is not normal. Replace the
UTOC ERR L0~4	• Any data of UTOC 0 to 4 looped. disc with other disc.	• UTOC data is not normal. Replace the
NOT AUDIO	• Nonaudio data was recorded in the track mode of currently selected TNO.	• Select other TNO or replace the disc with other disc.
? DISC	• Data "MINI" of system ID which has been written in TOC with ASCII code is not correct. • The disc type written in TOC does not correcpond to pre/ mastered MD, recording MD and hybrid MD.	• The loaded disc is not applicable. Replace the disc, and check.
DISC FULL	• When an attempt to set REC-PAUSE was made, there were no recordable areas.	• Replace the disc with other recording disc in which recording area remains.
PLAYBACK MD	• An attempt to set REC-PAUSE or to start editing was made on the playback-only disc.	• The loaded disc is a Playback-only disc. Replace the disc with a recording disc.
PROTECTED	• An attempt to record or edit was made on the recordable disc with its rewrite protection click being in rewrite preventing state. • An attempt was made to edit the track which was write-protected by information written in UTOC.	• Return the careless erase preventing tab to its initial position, and redo. • The track on which an attempt to edit was made is a write-protected track. Redo on another track.
Can't EDIT	• Specific editing conditions were not satisfied. proper. Redo, applying the ocrrect procedure.	• The applied operation procedure is not
TEMP OVER	• Owing to occurrence of some trouble internal temperature of set (MD unit) rose excessively. is too high.	• Check by troubleshooting. • Check whether the ambient temperature
DISC ERR RD PA WR	• Read data was not correct or data could not be read correctly. • Trouble occurred during recording if music data, resulting in record failure.	• Data of TOC or UTOC is not normal or disc las flaw. Replace the disc with other disc.
TOC ERR S TOC ERR R TOC ERR T	• TOC was read but data was not correct. • TOC could not be read.	• The TOC information recorded on disc does not conform to the MD standard. Replace the disc with other disc. • The disc has flaw. Replace the disc with other disc.
UTOC W ERR	• Trouble occurred during rewriting of UTOC, resulting in UTOC rewriting failure.	• The disc has flaw. Replace the disc with other disc.
FOCUS ERROR	• After the disc was loaded, focusing failure occurred. dust, fingerprint and black spot. Check for disc disalignment and run-out.	• Check that the disc is free from flaw,
BLANK MD	• UTOC was read but total TNO and the number of characters of NAME was 0?	• Perform recording to check that the disc is recordable disc.

Error display	Errors	Corrective action
DEFECT	• Focusing error was caused by shock during REC-PLAY.	• Check that the disc is free from flaw, dust, fingerprint and black spot. Check for disc disalignment and run-out.
TOC W ERROR	• Although UTOC can be read but UTOC cannot be rewritten.	• Check that the record head contact is normal. Check that there is no broken wire between PWB and the recording head.
MD ERROR	• Data of EEPROOM is not correct. • Auto pre-adjustment is not complated.	• Prefrom AUTO pre-adjustment. • Once reset, and redo. If error occurs persistently, replace EEPROM.

EXPLANATION OF MECHANISM ERROR

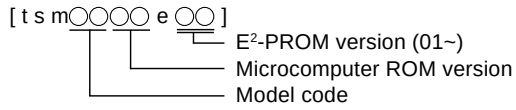
Error display	Errors
M E C H A _ E R R 1 _ * M E C H A _ E R R 2 _ * M E C H A _ E R R 3 _ *	Ejection failure Head-up failure Head-down failure

	HINF (IC1401 97 PIN)
* = E Ejection completion position	< 1.3 V
* = M Horizontal midway position	> 3.06 V
* = L Load completed position	1.853~2.48 V
* = D Head-down position	1.3~1.853 V

● E²-PROM (IC402) writing procedure

1. Procedure to replace E²-PROM and to write the initial value of microcomputer in E²-PROM

(1) Replace E²-PROM.
(2) Refer to the latest E²-PROM data list.
(3) Holding down the ENTER button and MD PLAY button,RESET button, and start up the test mode.
Press the MD STOP button.
(4) Indication of version.



(5) Press the ENTER button 7 times.
[E E P R O M S E T]
(6) Perform the operation shown in the "E²-PROM setting mode chart", compare the indication with the E²-PROM data list, and make a setting according to the E²-PROM data list, using JOG key.
(7) Set the temperature reference value.
(Refer to "Temperature reference setting procedure".)
(8) The setting must conform to the E²-PROM data list.
(9) Perform the AUTO per-adjustment and the AUTO adjustment.
(10) Turn off power supply to write in E²-PROM.

2. Temperature reference value setting procedure (to be executed at room temperature within 21 to 29°C)

(1) Test mode stop state.
[t s m○○○○ e ○○]
(2) Crrect temperature depending on ambient temperature according to the following table.

Ambient temperature (°C)	Temperature correction
12.2 ~ 15.8	-3
15.9 ~ 19.6	-2
19.7 ~ 23.3	-1
23.2 ~ 26.8	0
26.9 ~ 30.7	+1
30.8 ~ 34.3	+2
34.4 ~ 37.9	+3

An example: When ambient temperature is 22°C and meadured temperature is 73H
Temperature setting = 73 H - 01 H
= 72 H
* When the measured temperature fluctuates between two values, take lower one (if temperature fluctuates between 73H and 72H, take 72H).

(3) Press the ENTER button 7 times.
[E E P R O M S E T]
(4) Press the MD PLAY button.
[F O C U S]
(5) Press the ENTER button 4 times.
[T e m p]
(6) Press once the MD PLAY button.
[T E M P ○○ ◆◆]
○○ : Measured temperature, ◆◆ : Temperature setting
(7) Set temperature to the value determined above, using the JOG button.
(8) Press the MD STOP button.
[T e m p]

● **E²-PROM Data List**

Focus setting

Item indication		Initial Setting
FG	○○	97H
FF1	○○	9EH
FF2	○○	E0H
FZHLEV	○○	EDH
FOKLEVn	○○	08H
FOKLEVf	○○	08H
FOKLPFn	○○	00H
FOKLPFf	○○	88H
WAITf	○○	90H

Spin setting

Item indication		Initial Setting
SPG	○○	20H
SPG—in	○○	B8H
SPG—mid	○○	76H
SPG—out	○○	50H
SP1	○○	10H
SP2	○○	87H
SP3	○○	E3H
SP4	○○	E3H
SP5	○○	10H
SPDLIM	○○	78H

Tracking setting

Item indication		Initial Setting
TG	○○	45H
TF1	○○	70H
TF2	○○	E0H
SVCNT4	○○	01H
TRBLVo	○○	53H
TRBLVt	○○	60H
TRKLVo	○○	4CH
TRKLVt	○○	38H
TDPWo	○○	89H
TDPWt	○○	1AH
SLCTo	○○	00H
SLCTt	○○	40H
SLCTm	○○	53H
TCRSCIP	○○	16H
COTLVP	○○	14H
COTLVr	○○	28H
WAITm	○○	FFH

Slide setting

Item indication		Initial Setting
SLG	○○	35H
SL2	○○	27H
SLDLIM	○○	65H
SLDLEV	○○	16H
SLKLVk	○○	55H
SLKLVt	○○	3AH
SLKLVm	○○	55H

Control setting

Item indication		Initial Setting
CONTRL1	○○	80H
CONTRL2	○○	02H
SPKLEVm	○○	26H
ADJTTM	○○	14H
HDEQAD	○○	90H
LDEQAD	○○	8FH
GDEQAD	○○	91H
HDEQBC	○○	90H
LDEQBC	○○	8FH
GDEQBC	○○	8AH
HALSG	○○	21H
LALSG	○○	21H
GALSG	○○	21H
HALSOFS	○○	FEH
LALSOFS	○○	00H
GALSOFS	○○	00H

Adjust setting

Item indication		Initial Setting
COK	○○	A0H
FAT	○○	C0H
TAT	○○	3EH
CAT	○○	20H
FAB	○○	64H
STR	○○	0AH
SFS	○○	0DH
STC	○○	0DH

● **E²-PROM Setting Mode Chart**

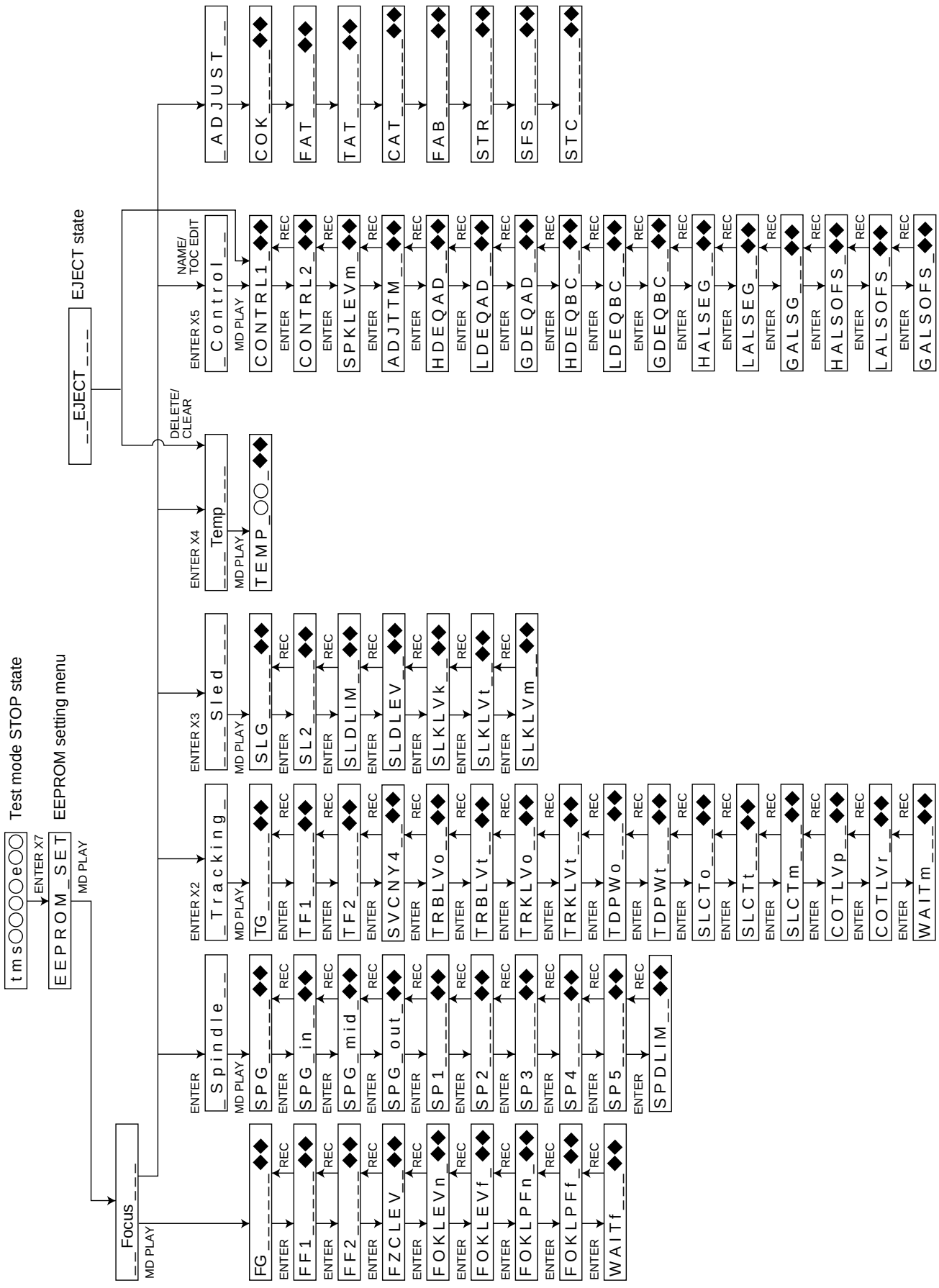


Figure 32

NOTES ON SCHEMATIC DIAGRAM

- Resistor:
  To differentiate the units of resistors, such symbol as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000 kohm and the resistor without any symbol is ohm-type resistor. Besides, the one with “Fusible” is a fuse type.
- Capacitor:
  To indicate the unit of capacitor, a symbol P is used: this symbol P means micro-micro-farad and the unit of the capacitor without such a symbol is microfarad. As to electrolytic capacitor, the expression “capacitance/withstand voltage” is used.
  (CH), (TH), (RH), (UJ): Temperature compensation
  (ML): Mylar type
  (P.P.): Polypropylene type
- Schematic diagram and Wiring Side of P.W.Board for this model are subject to change for improvement without prior notice.
- The indicated voltage in each section is the one measured by Digital Multimeter between such a section and the chassis with no signal given.
  1. In the tuner section,
     ( ) indicates AM
     < > indicates FM stereo
  2. In the main section, a tape is being played back.
  3. In the deck section, a tape is being played back.
     ( ) indicates the record state.
  4. In the power section, a tape is being played back.
  5. In the CD section, the CD is stopped.
- Parts marked with “ ⚠ ” (⊏ ═ ═ ═ ⊐) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO	DESCRIPTION	POSITION
SW501	RESET	ON—OFF
SW702	PICKUP IN	ON—OFF
SW901	JOG	ON—OFF
SW950	POWER	ON—OFF
SW951	MD-PLAY	ON—OFF
SW952	MD-STOP	ON—OFF
SW953	MD-REC	ON—OFF
SW954	CUE	ON—OFF
SW955	MD-EJECT	ON—OFF
SW956	ENTER	ON—OFF
SW957	NAME	ON—OFF
SW958	TIMER	ON—OFF
SW959	DISP	ON—OFF
SW960	REVIEW	ON—OFF
SW961	AUX	ON—OFF
SW962	UND	ON—OFF
SW980	CD-PLAY	ON—OFF
SW981	CD-STOP	ON—OFF
SW982	DISC 1	ON—OFF
SW983	DISC 2	ON—OFF

REF. NO	DESCRIPTION	POSITION
SW984	DISC 3	ON—OFF
SW985	DISC 1 OPEN/CLOSE	ON—OFF
SW986	DISC 2 OPEN/CLOSE	ON—OFF
SW987	DISC 3 OPEN/CLOSE	ON—OFF
SW988	START	ON—OFF
SW989	TOC • EDIT	ON—OFF
SW1952	DIRECT	ON—OFF
SW1953	LEAD IN	ON—OFF
SW1954	PLAY	ON—OFF
SW1955	REC	ON—OFF
SW1956	LOADING	ON—OFF
SWB101	CAM 1	ON—OFF
SWB102	CAM 2	ON—OFF
SWB103	CAM 3	ON—OFF
SWB104	CAM 4	ON—OFF
SWB105	CD EJECT	ON—OFF
SWB106	CD TRAY CLOSE	ON—OFF
SWB107	CD IN	ON—OFF
SWB108	CD SET	ON—OFF

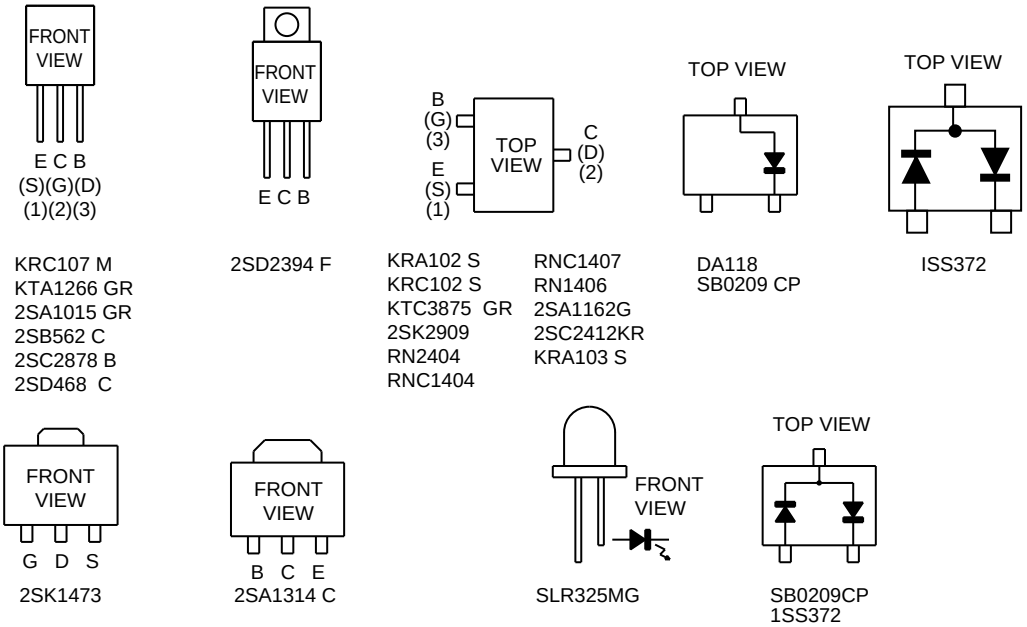


Figure 33 TYPES OF TRANSISTOR AND LED

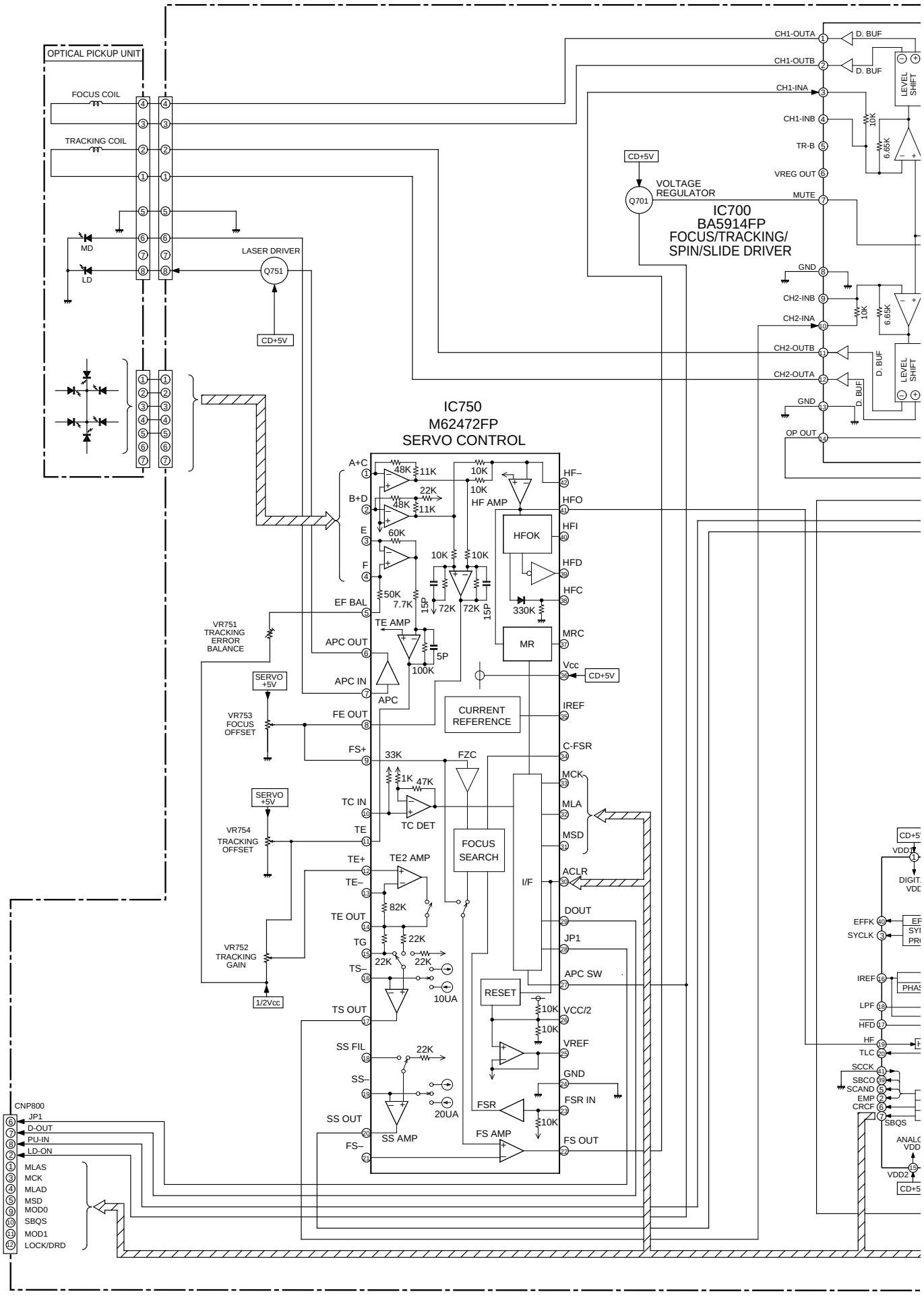


Figure 34 BLOCK DIAGRAM (1/4)

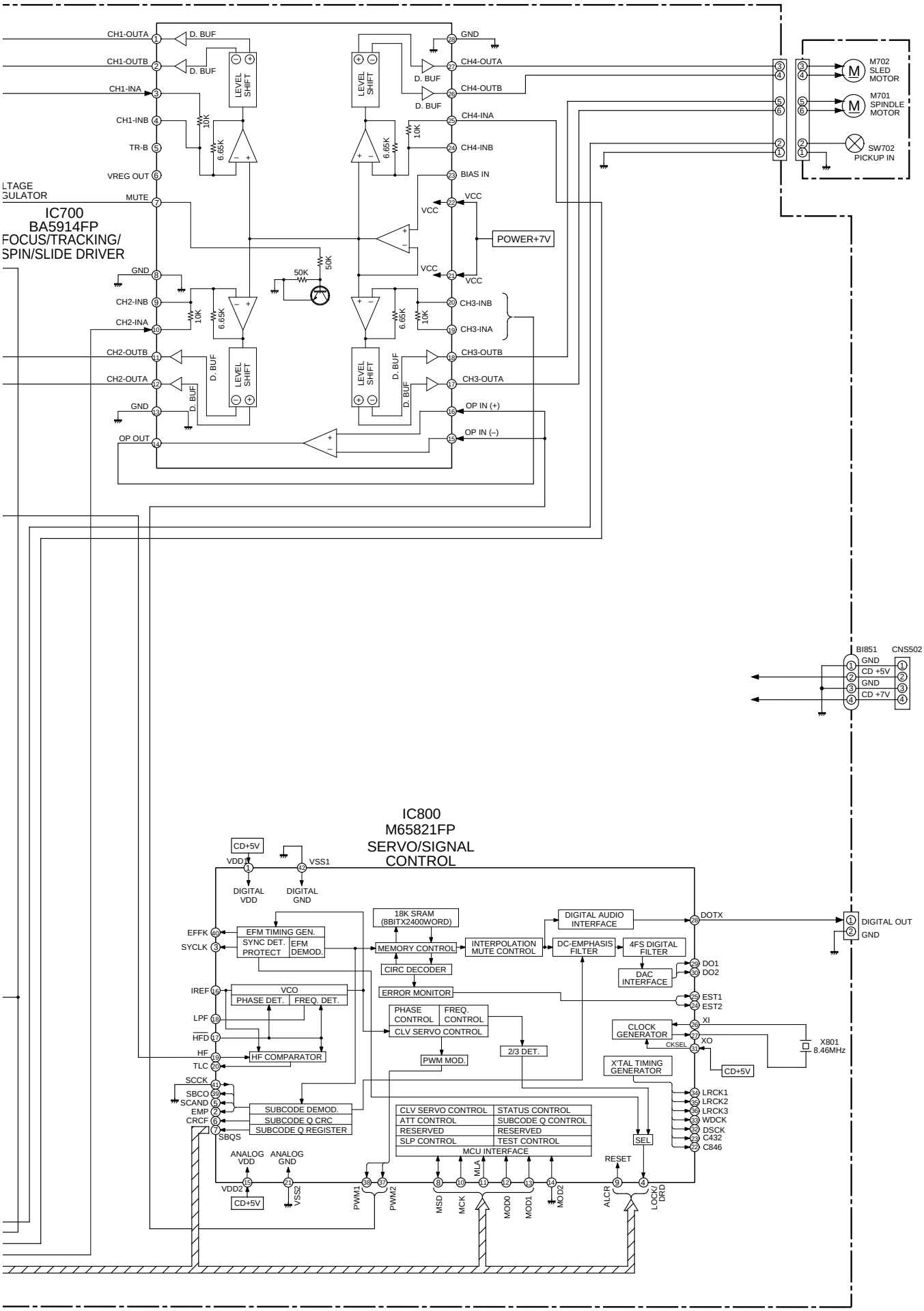


Figure 35 BLOCK DIAGRAM (2/4)

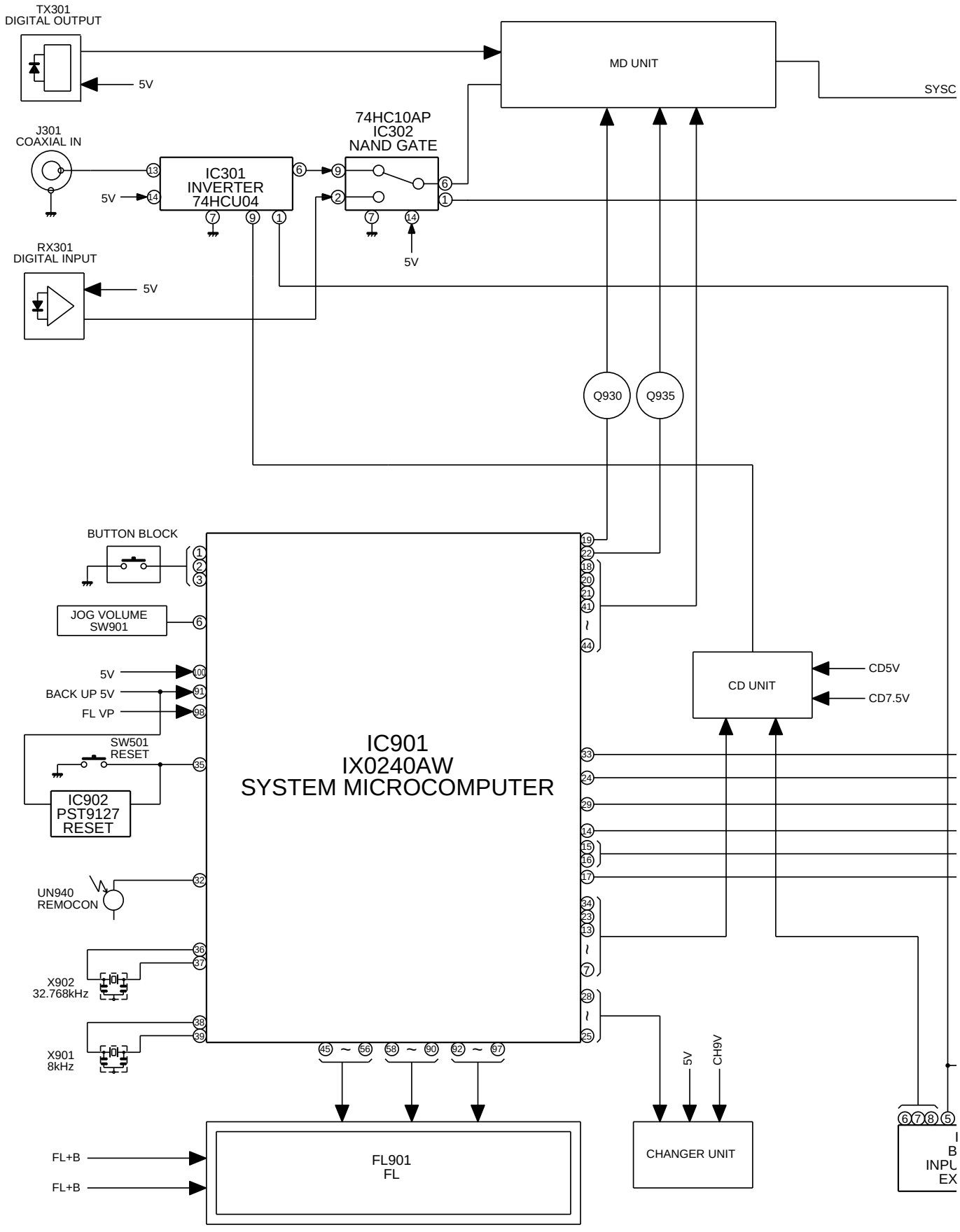


Figure 36 BLOCK DIAGRAM (3/4)

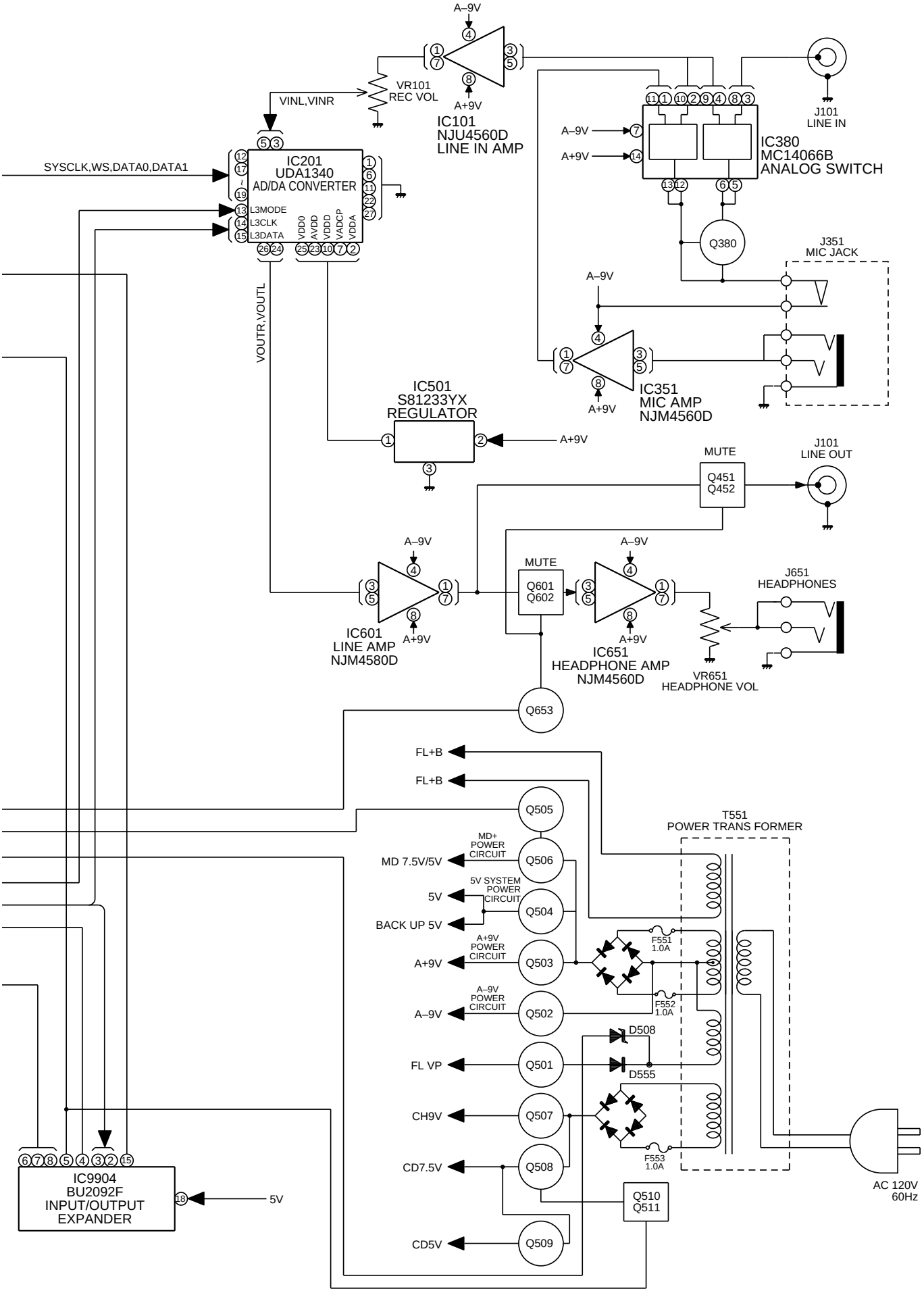


Figure 37 BLOCK DIAGRAM (4/4)

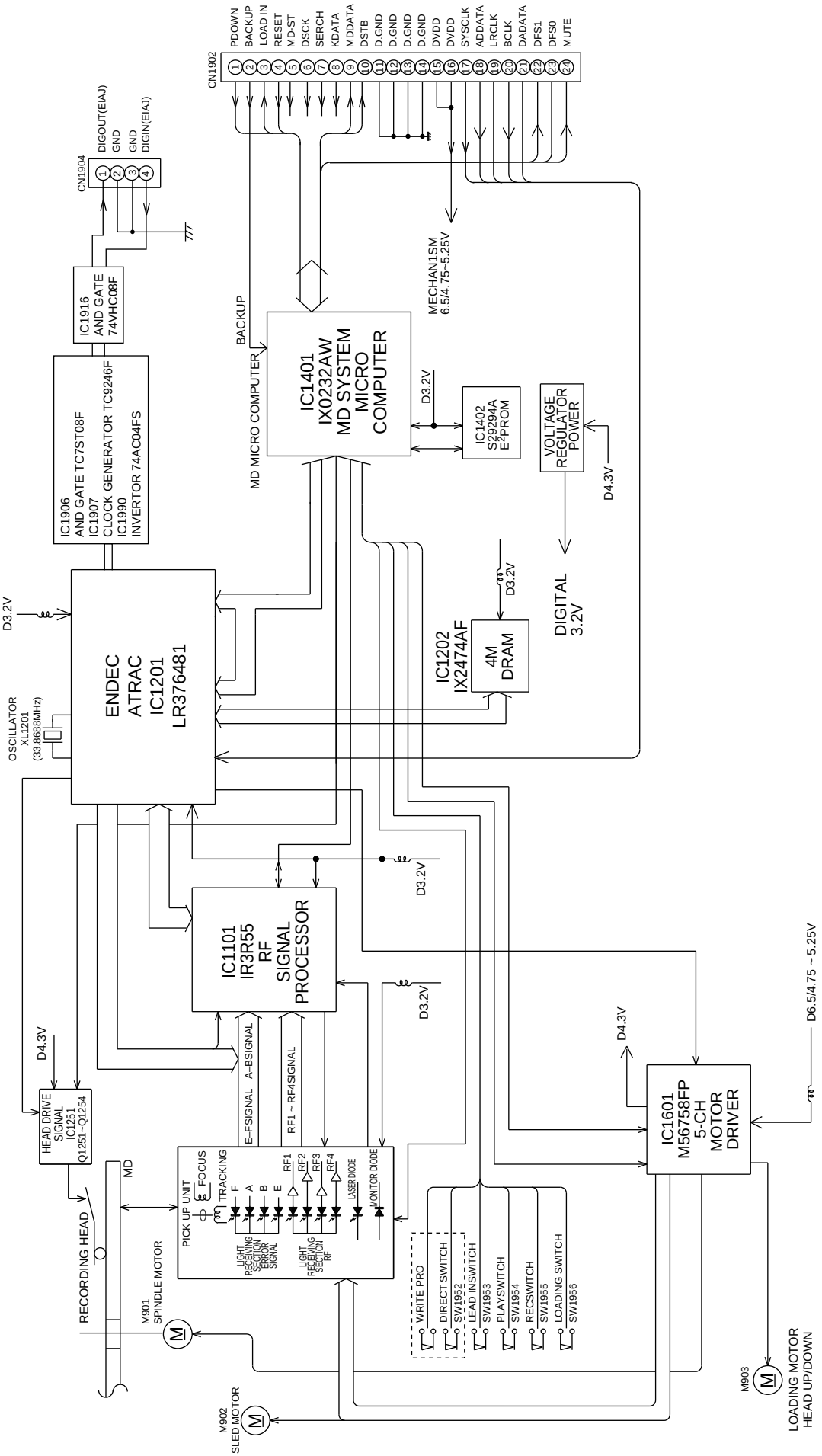


Figure 38 BLOCK DIAGRAM (5/6)

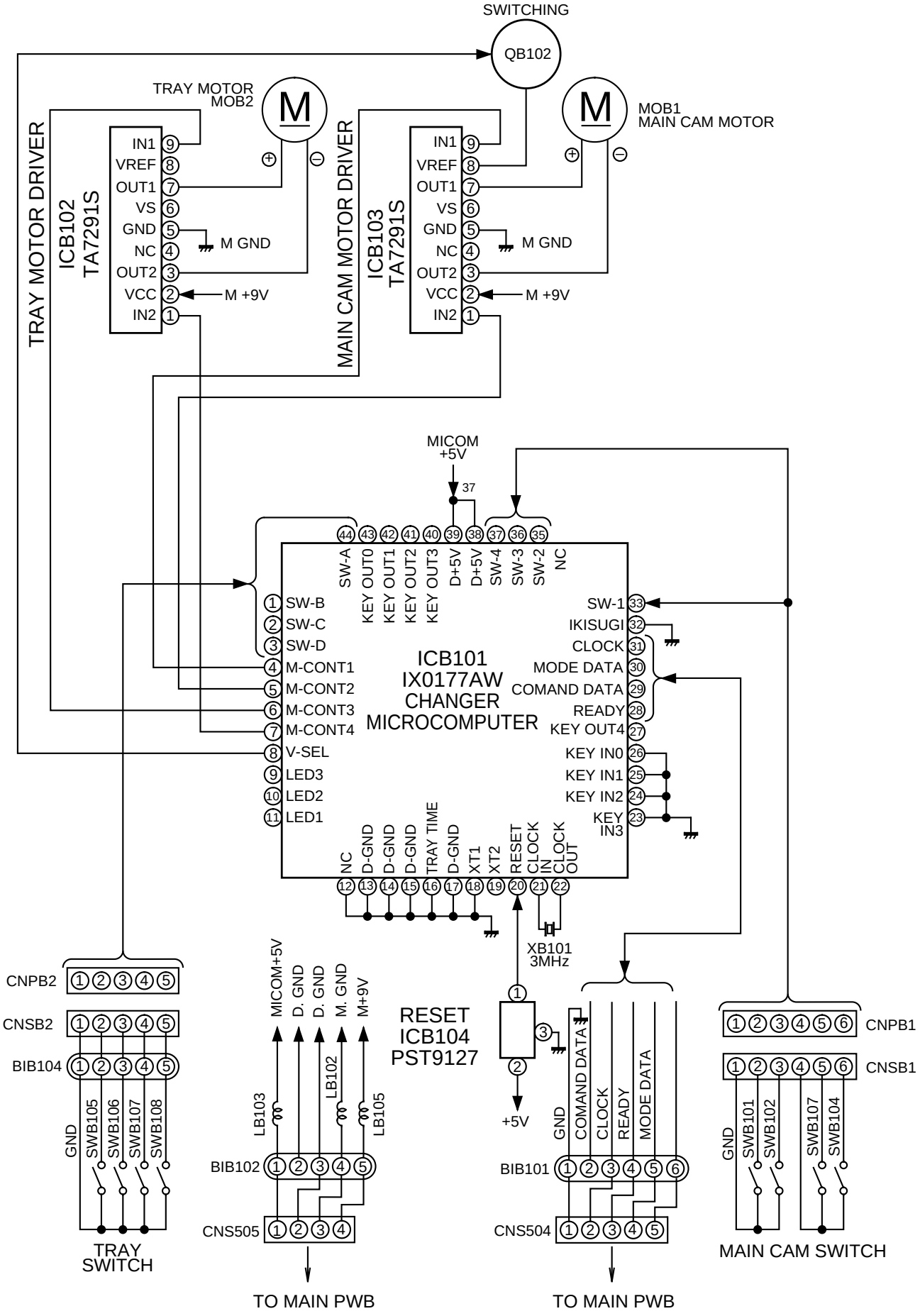
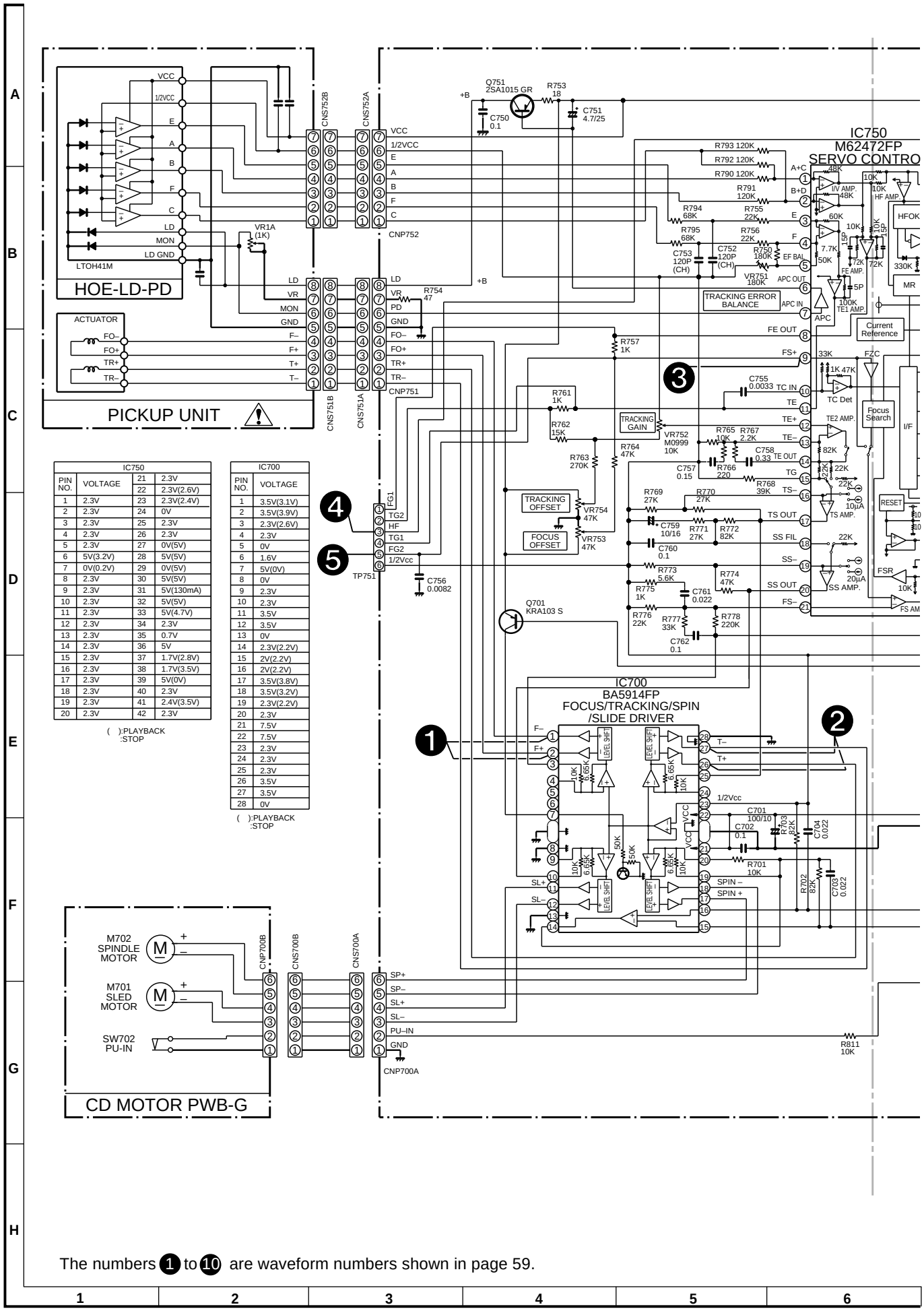


Figure 39 BLOCK DIAGRAM (6/6)



IC750			
PIN NO.	VOLTAGE	21	2.3V
		22	2.3V(2.6V)
1	2.3V	23	2.3V(2.4V)
2	2.3V	24	0V
3	2.3V	25	2.3V
4	2.3V	26	2.3V
5	2.3V	27	0V(5V)
6	5V(3.2V)	28	5V(5V)
7	0V(0.2V)	29	0V(5V)
8	2.3V	30	5V(5V)
9	2.3V	31	5V(130mA)
10	2.3V	32	5V(5V)
11	2.3V	33	5V(4.7V)
12	2.3V	34	2.3V
13	2.3V	35	0.7V
14	2.3V	36	5V
15	2.3V	37	1.7V(2.8V)
16	2.3V	38	1.7V(3.5V)
17	2.3V	39	5V(0V)
18	2.3V	40	2.3V
19	2.3V	41	2.4V(3.5V)
20	2.3V	42	2.3V

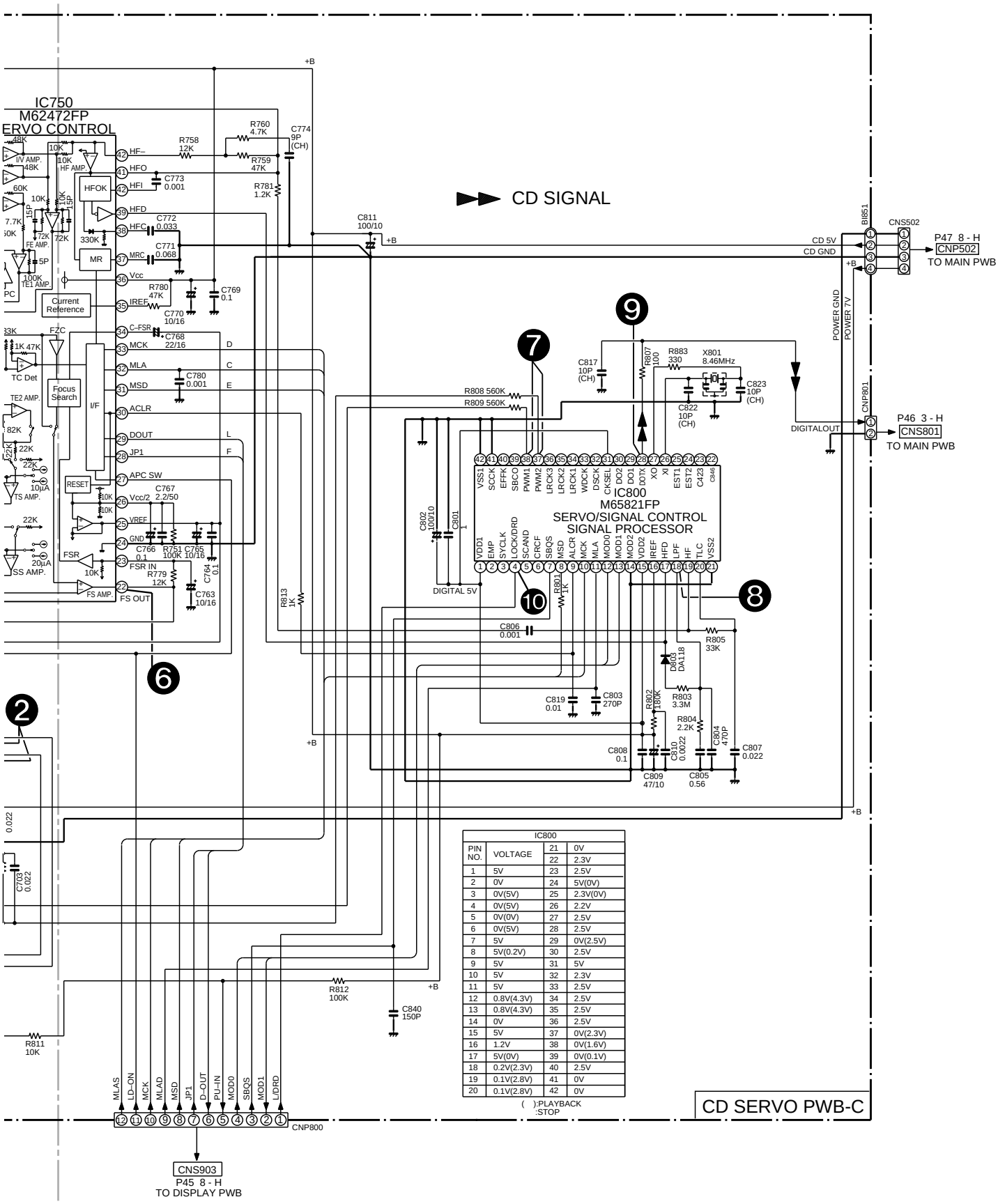
( ):PLAYBACK
:STOP

IC700	
PIN NO.	VOLTAGE
1	3.5V(3.1V)
2	3.5V(3.9V)
3	2.3V(2.6V)
4	2.3V
5	0V
6	1.6V
7	5V(0V)
8	0V
9	2.3V
10	2.3V
11	3.5V
12	3.5V
13	0V
14	2.3V(2.2V)
15	2V(2.2V)
16	2V(2.2V)
17	3.5V(3.8V)
18	3.5V(3.2V)
19	2.3V(2.2V)
20	2.3V
21	7.5V
22	7.5V
23	2.3V
24	2.3V
25	2.3V
26	3.5V
27	3.5V
28	0V

( ):PLAYBACK
:STOP

The numbers ❶ to ❿ are waveform numbers shown in page 59.

Figure 40 SCHEMATIC DIAGRAM (1/10)



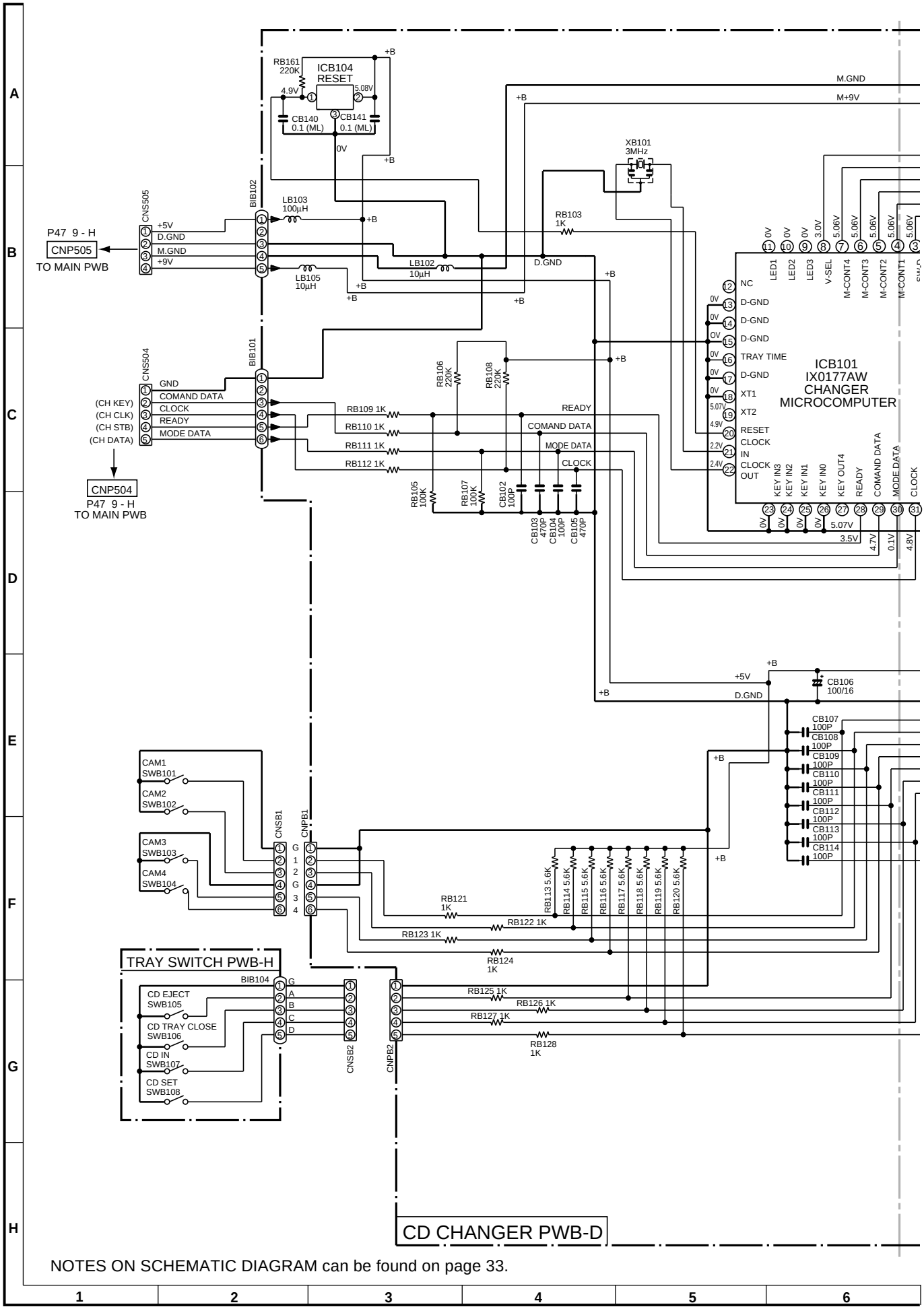
IC800			
PIN NO.	VOLTAGE	21	0V
		22	2.3V
1	5V	23	2.5V
2	0V	24	5V(0V)
3	0V(5V)	25	2.3V(0V)
4	0V(5V)	26	2.2V
5	0V(0V)	27	2.5V
6	0V(5V)	28	2.5V
7	5V	29	0V(2.5V)
8	5V(0.2V)	30	2.5V
9	5V	31	5V
10	5V	32	2.3V
11	5V	33	2.5V
12	0.8V(4.3V)	34	2.5V
13	0.8V(4.3V)	35	2.5V
14	0V	36	2.5V
15	5V	37	0V(2.3V)
16	1.2V	38	0V(1.6V)
17	5V(0V)	39	0V(0.1V)
18	0.2V(2.3V)	40	2.5V
19	0.1V(2.8V)	41	0V
20	0.1V(2.8V)	42	0V

( ):PLAYBACK
:STOP

NOTES ON SCHEMATIC DIAGRAM can be found on page 33.

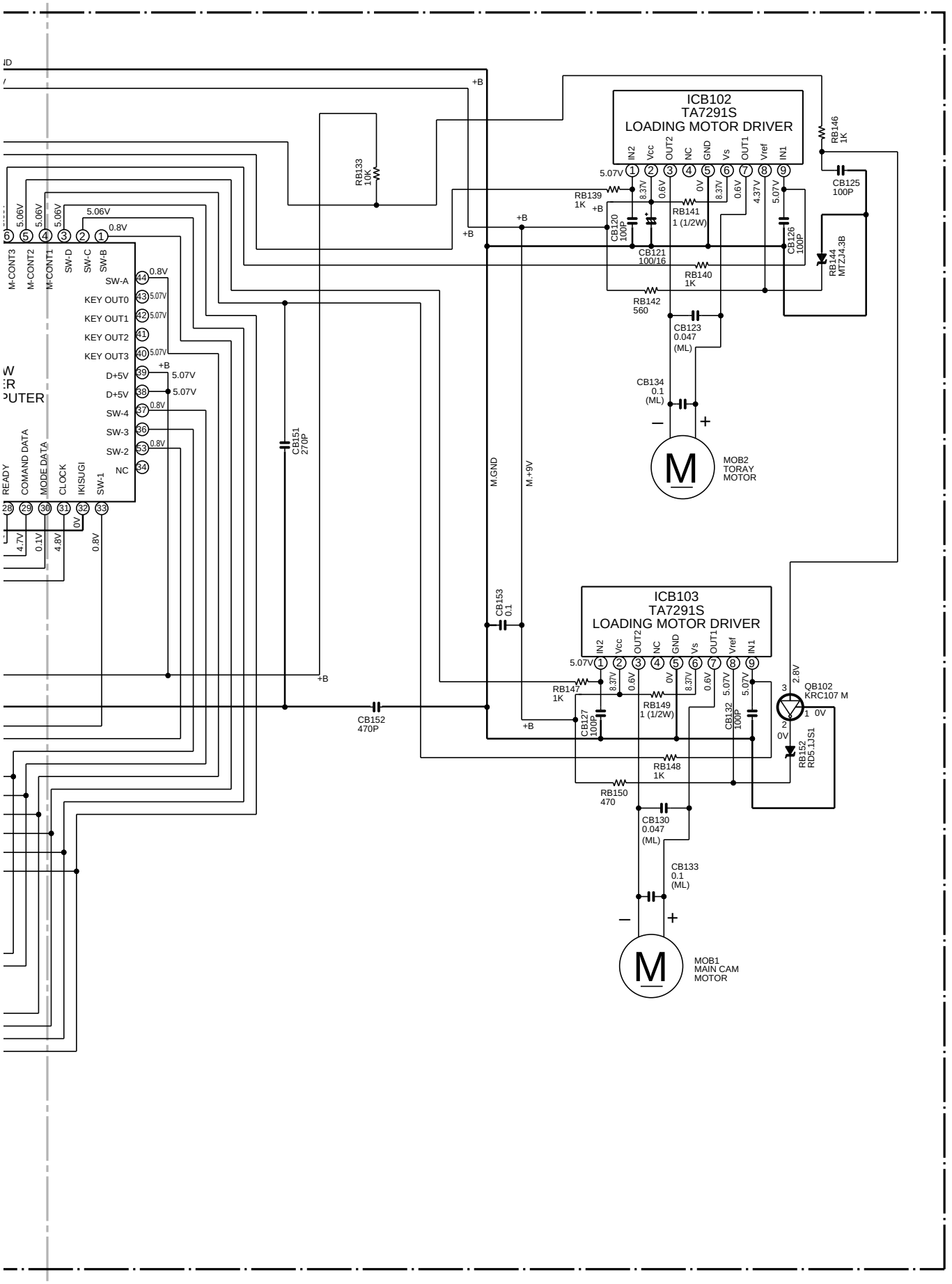
7	8	9	10	11	12

Figure 41 SCHEMATIC DIAGRAM (2/10)



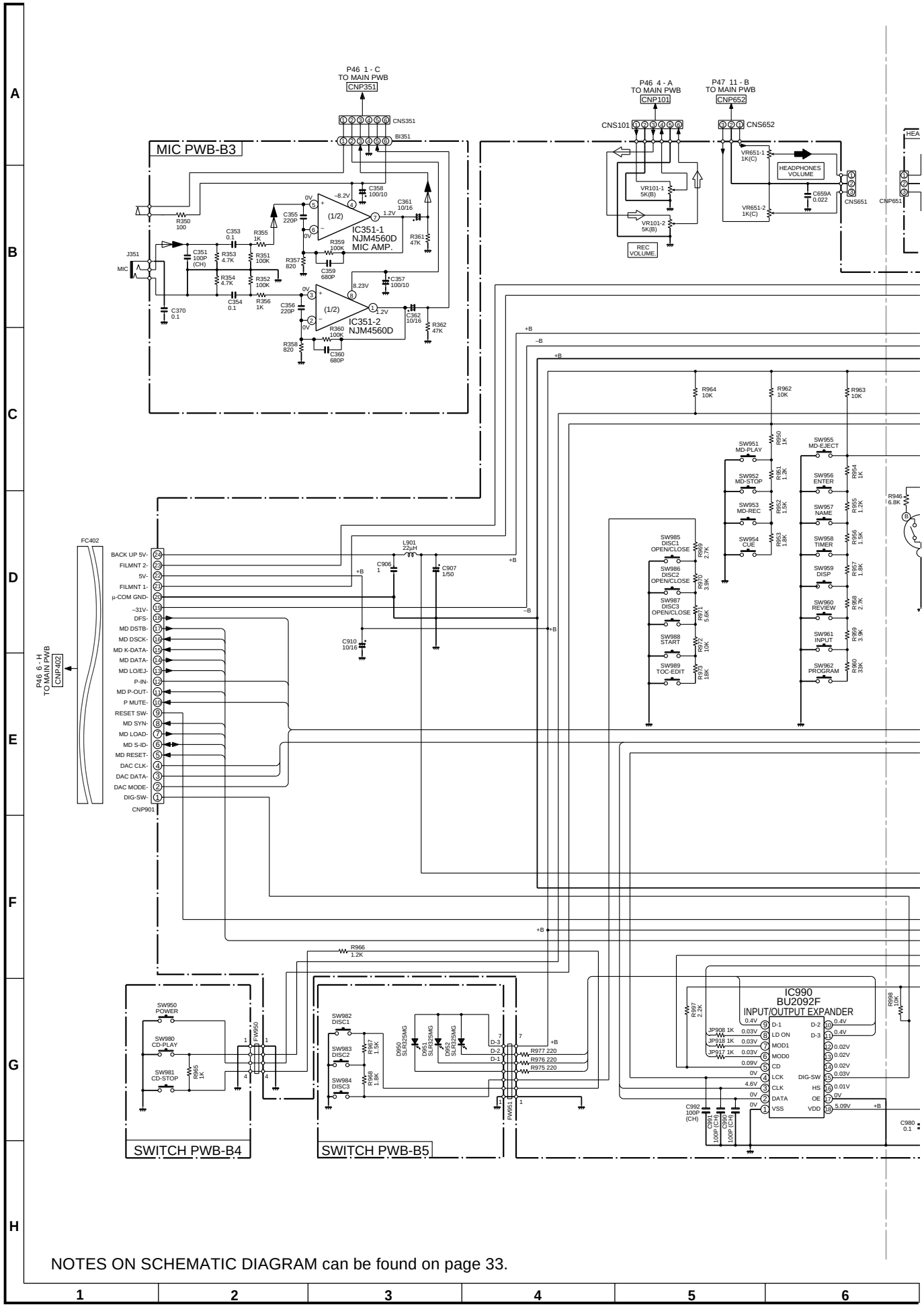
NOTES ON SCHEMATIC DIAGRAM can be found on page 33.

Figure 42 SCHEMATIC DIAGRAM (3/10)



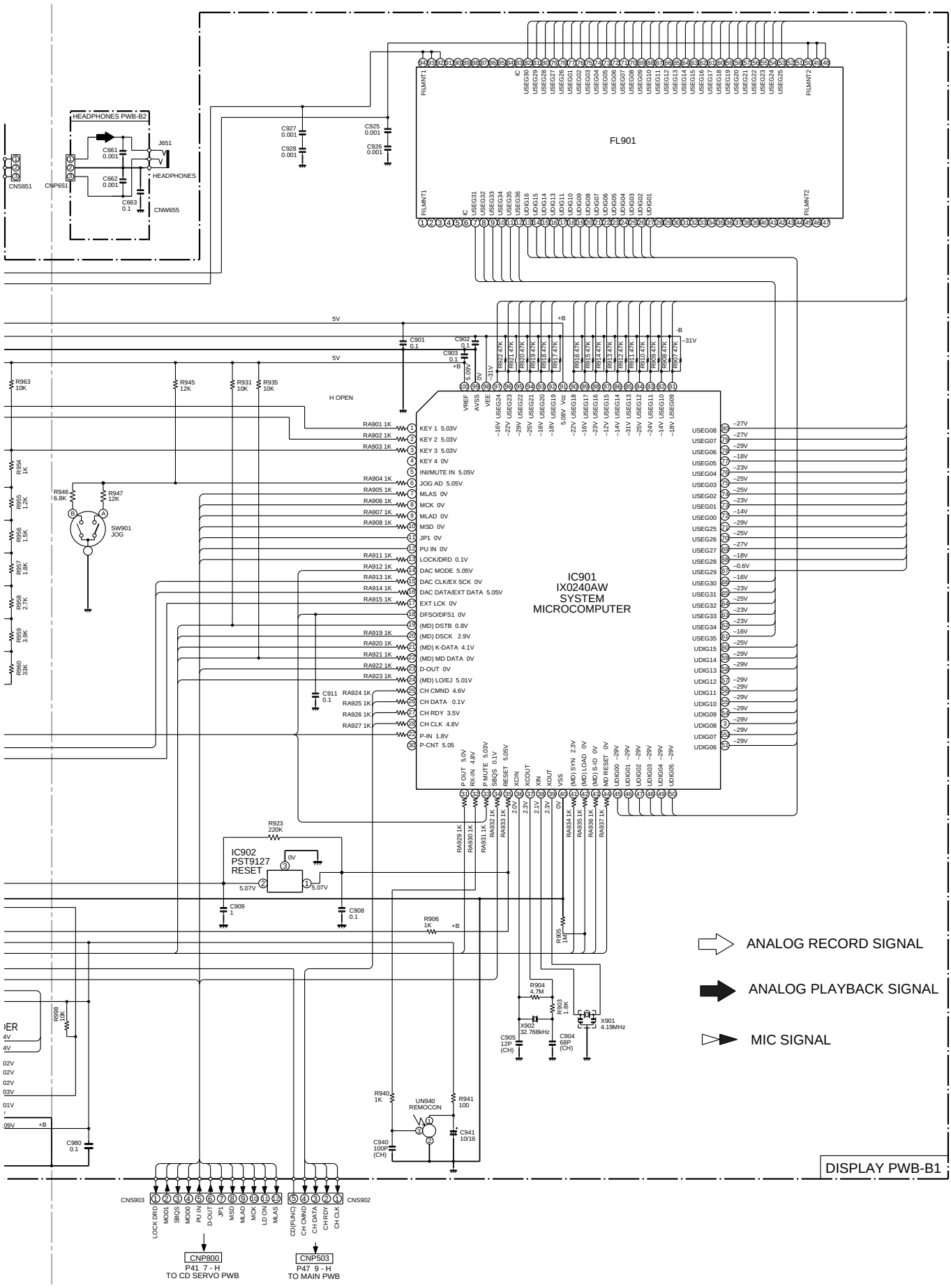
7	8	9	10	11	12

Figure 43 SCHEMATIC DIAGRAM (4/10)



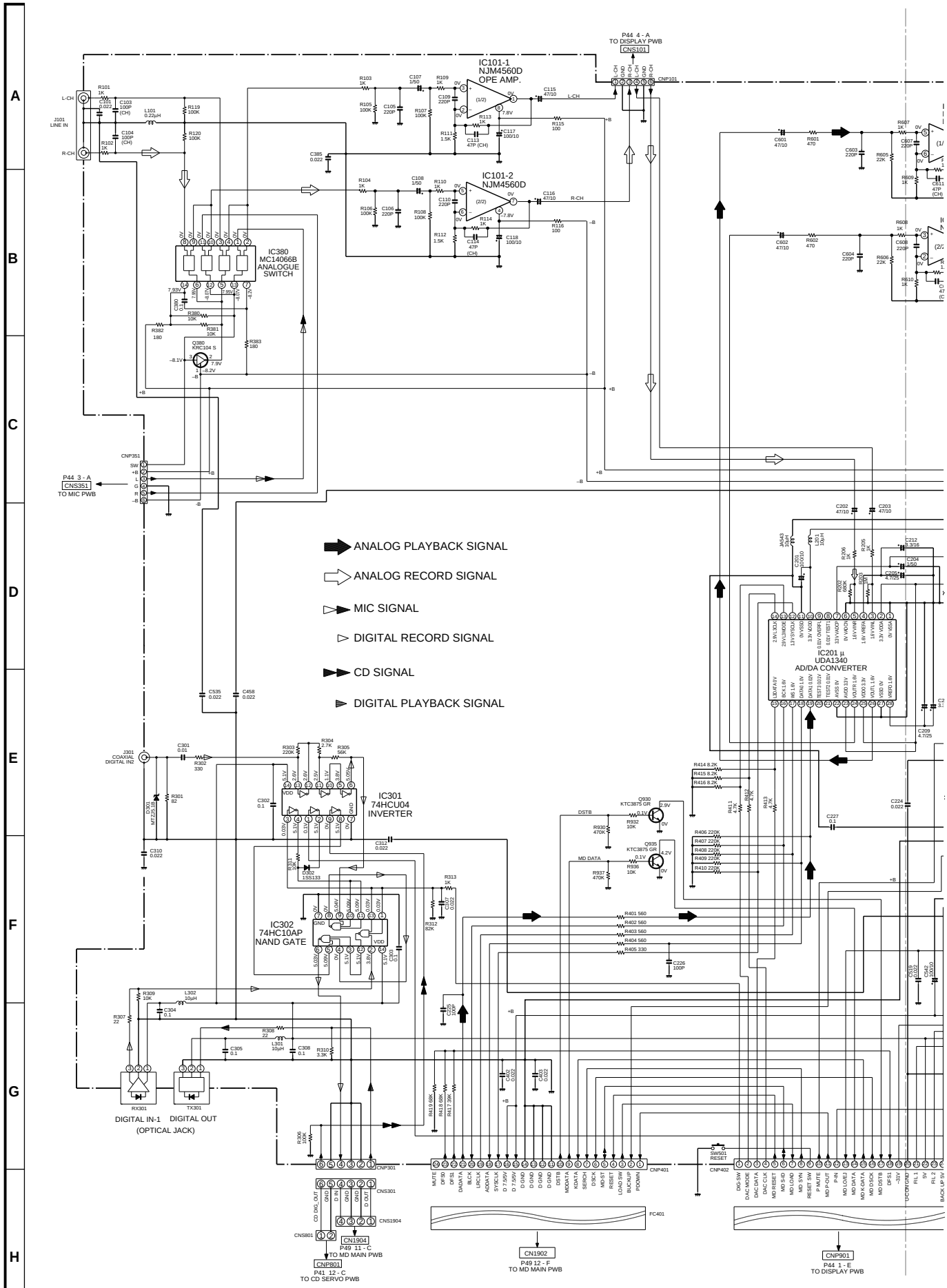
NOTES ON SCHEMATIC DIAGRAM can be found on page 33.

Figure 44 SCHEMATIC DIAGRAM (5/10)



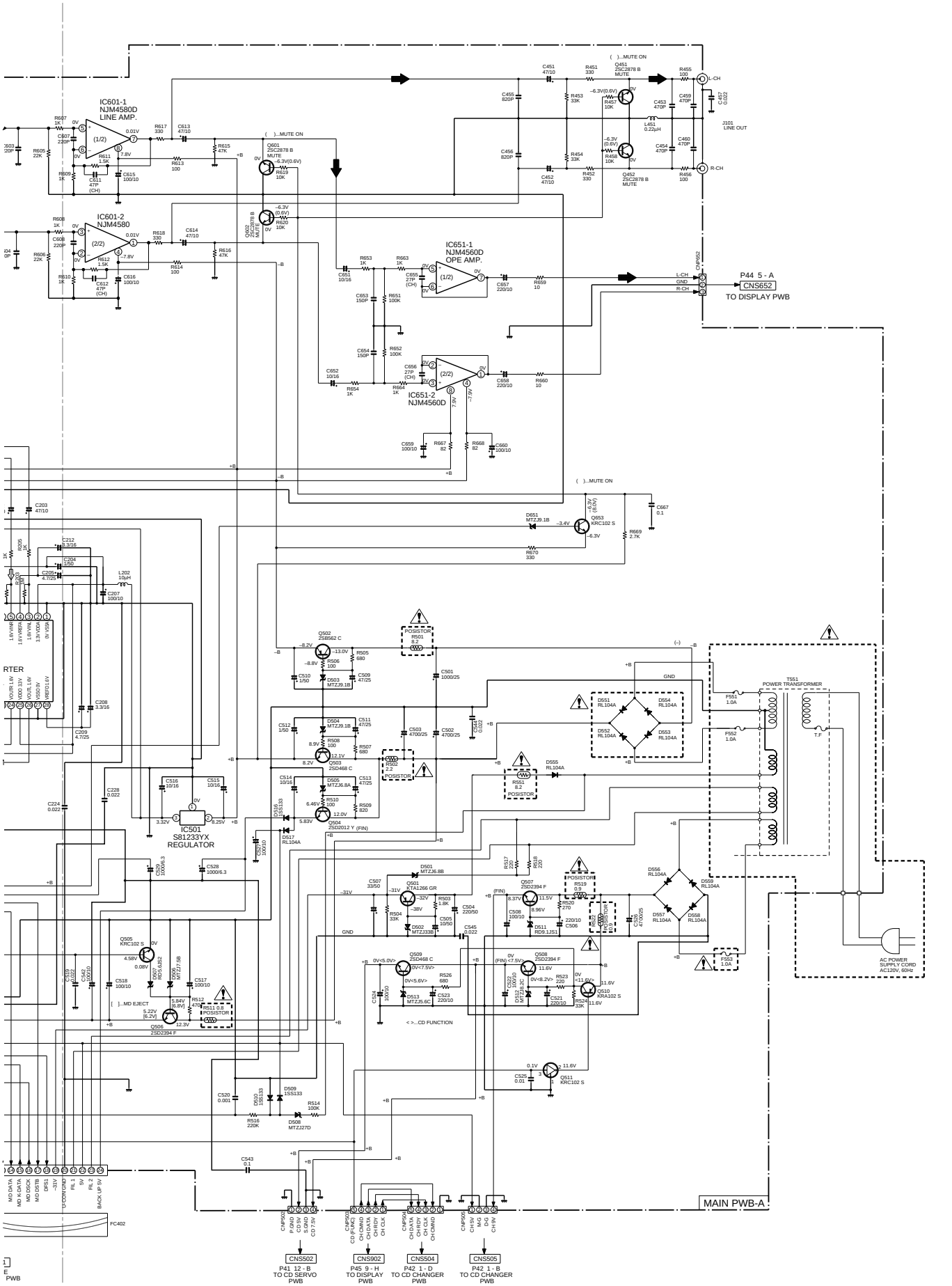
7	8	9	10	11	12

Figure 45 SCHEMATIC DIAGRAM (6/10)



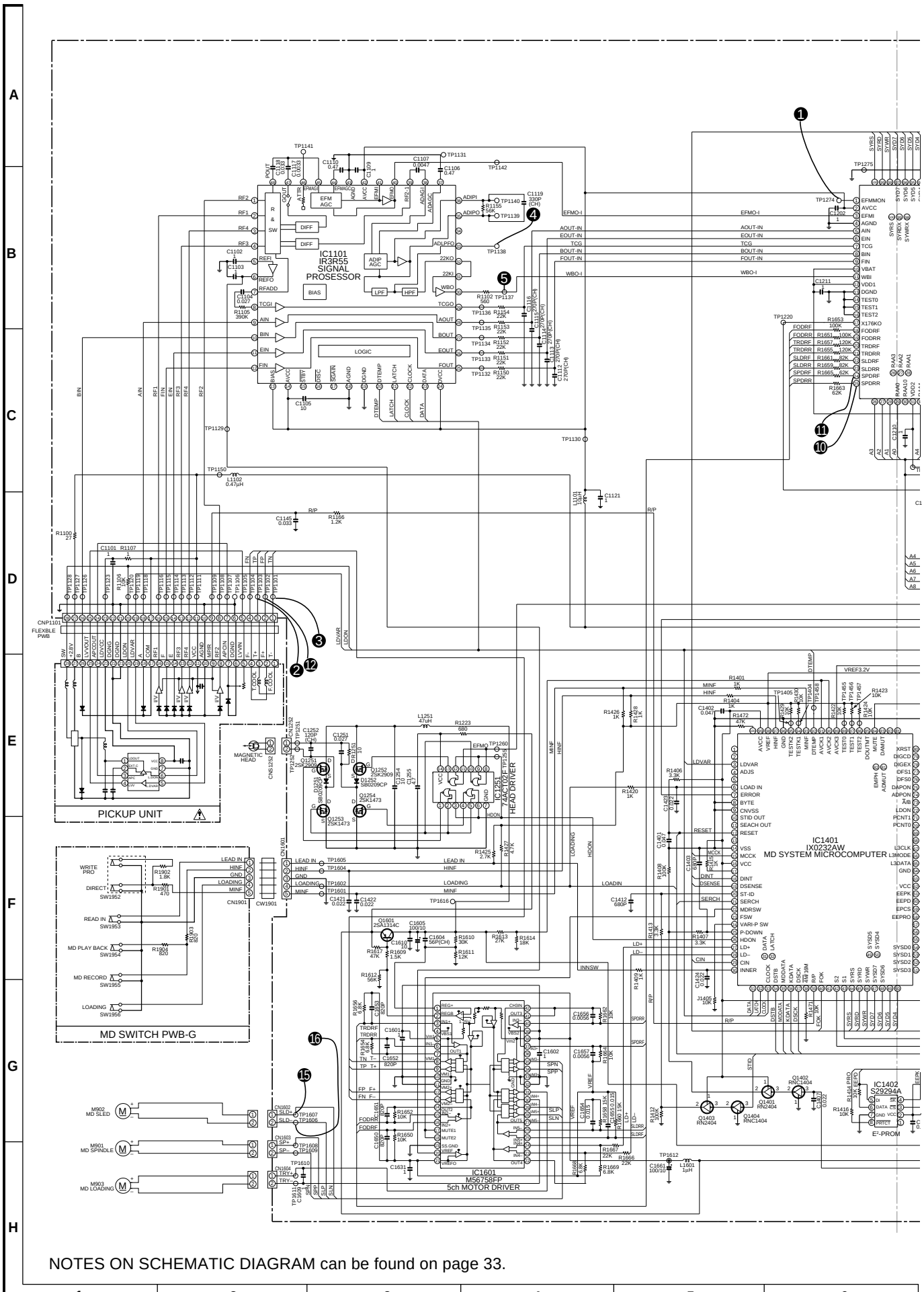
NOTES ON SCHEMATIC DIAGRAM can be found on page 33.

Figure 46 SCHEMATIC DIAGRAM (7/10)



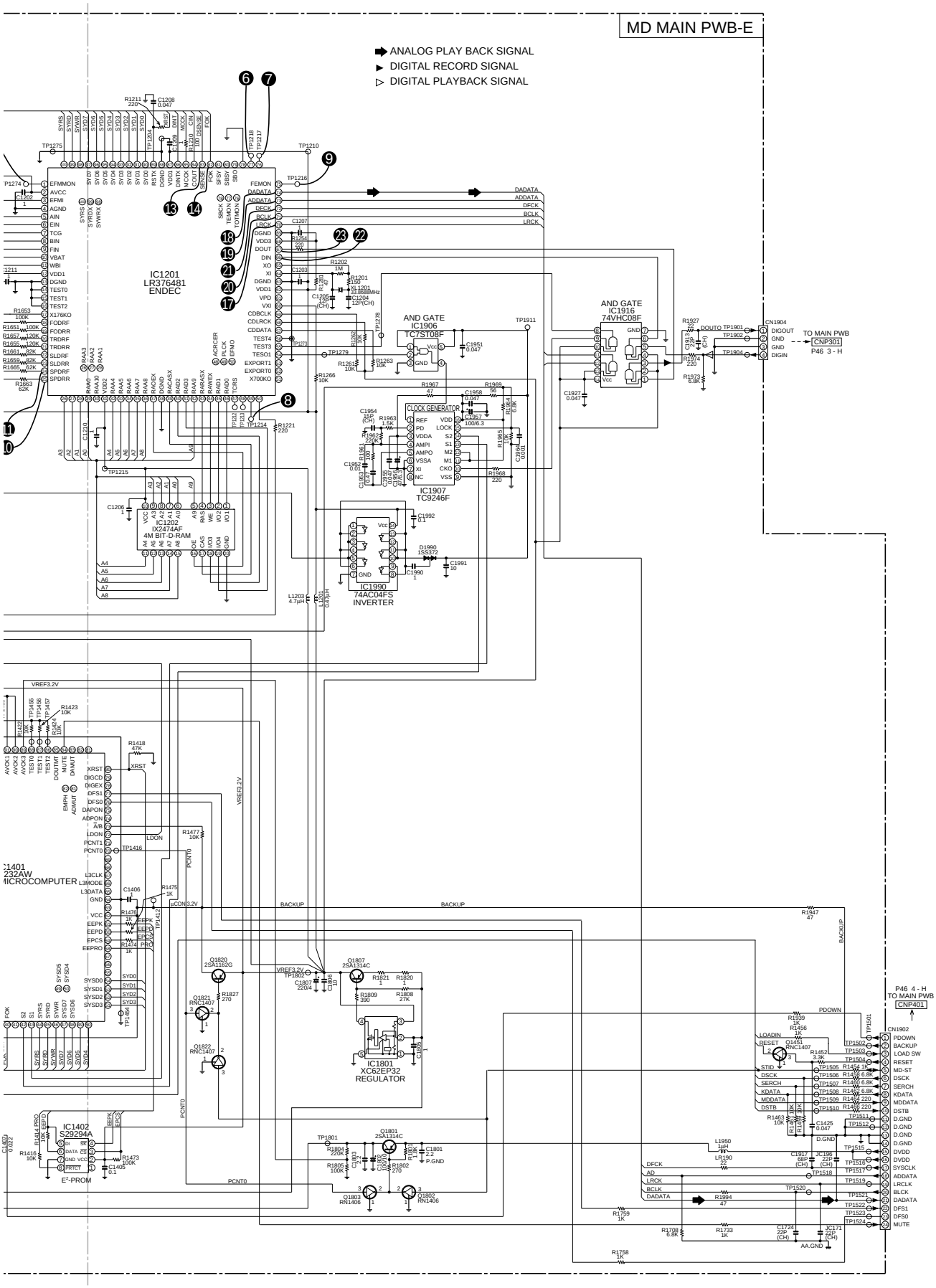
7	8	9	10	11	12

Figure 47 SCHEMATIC DIAGRAM (8/10)



NOTES ON SCHEMATIC DIAGRAM can be found on page 33.

Figure 48 SCHEMATIC DIAGRAM (9/10)



The numbers ❶ to ㉓ are waveform numbers shown in page 60, 61.

7	8	9	10	11	12

Figure 49 SCHEMATIC DIAGRAM (10/10)

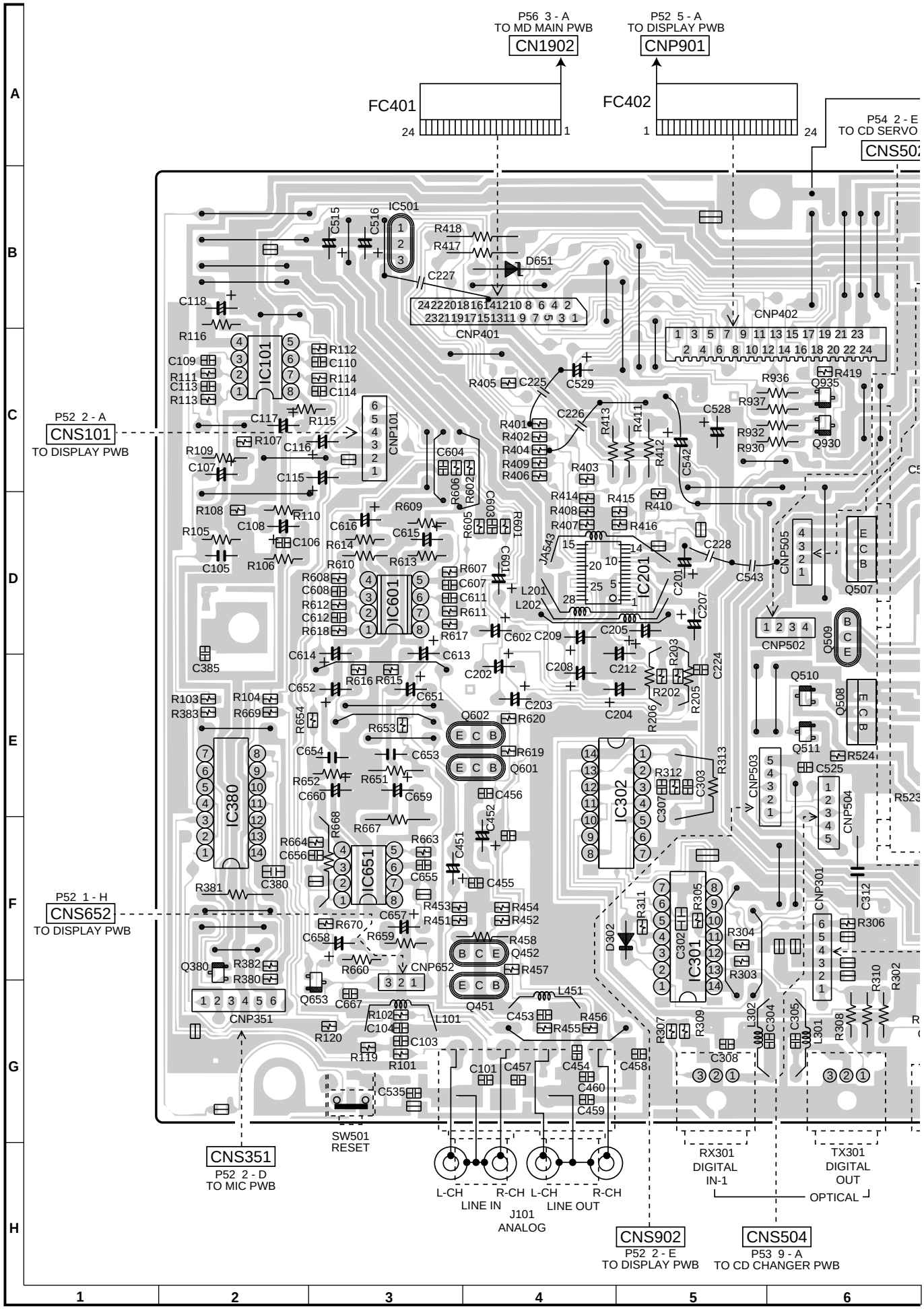
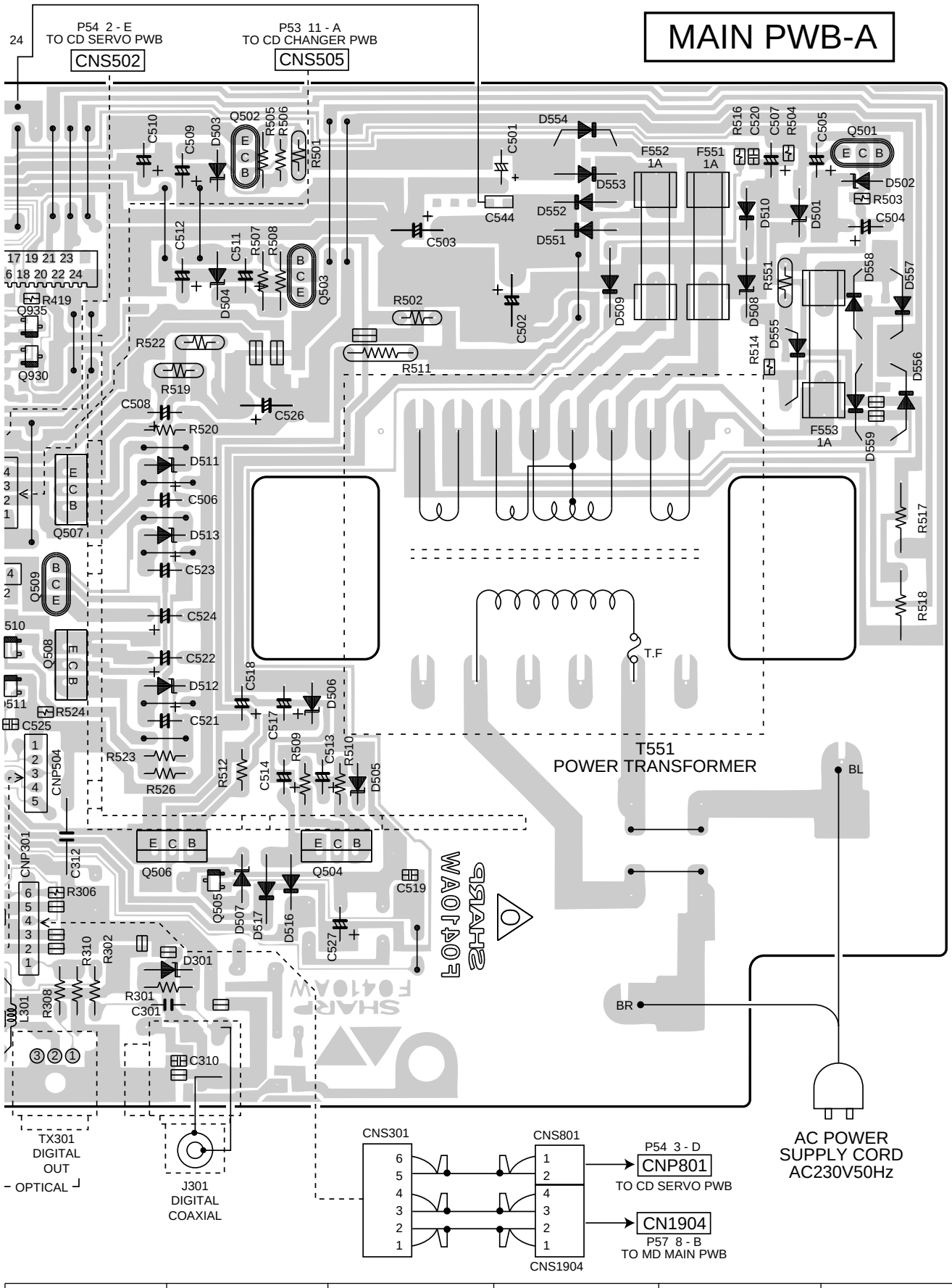


Figure 50 WIRIMG SIDE OF P.W.BOARD (1/8)



7	8	9	10	11	12

Figure 51 WIRIMG SIDE OF P.W.BOARD (2/8)

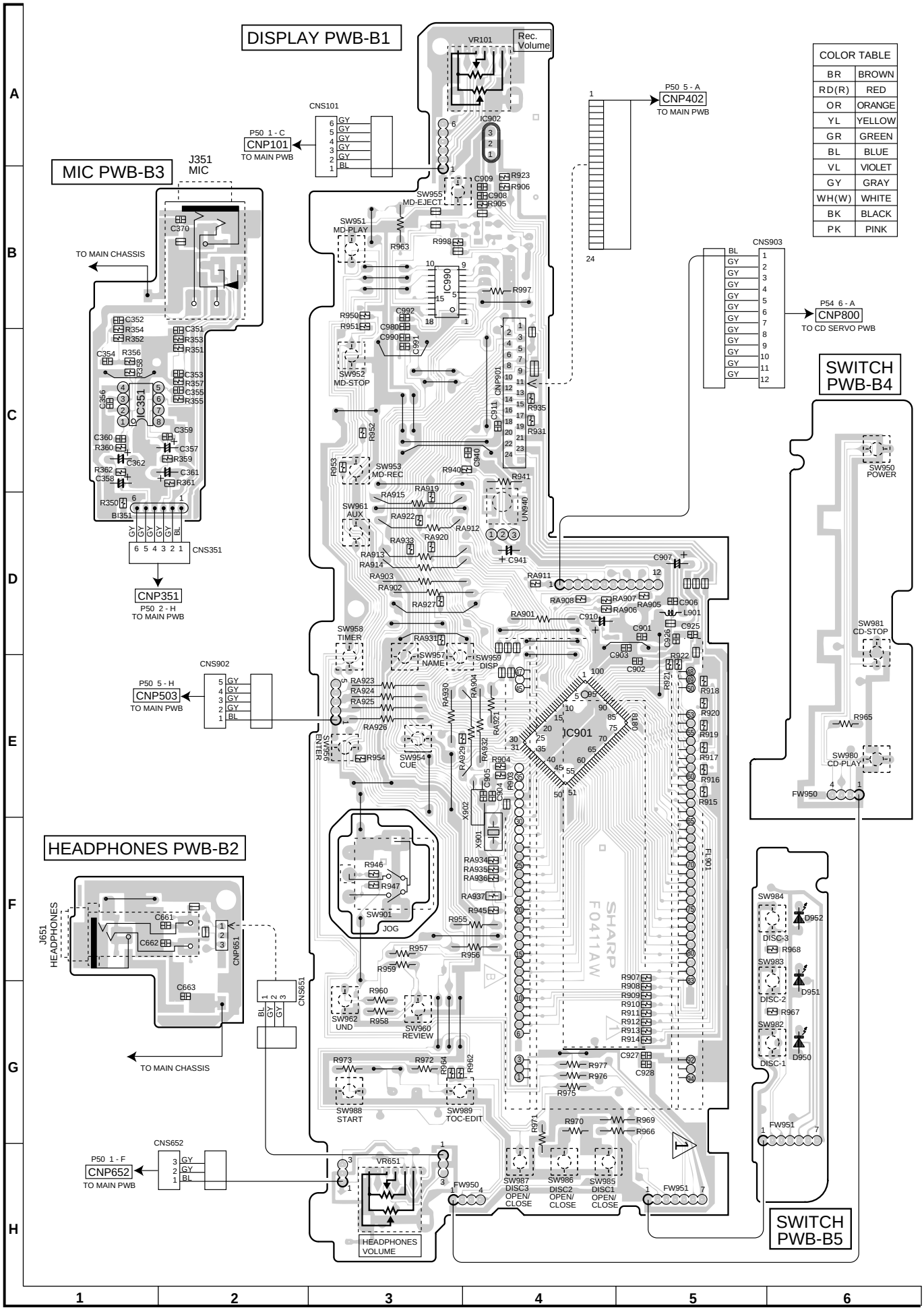
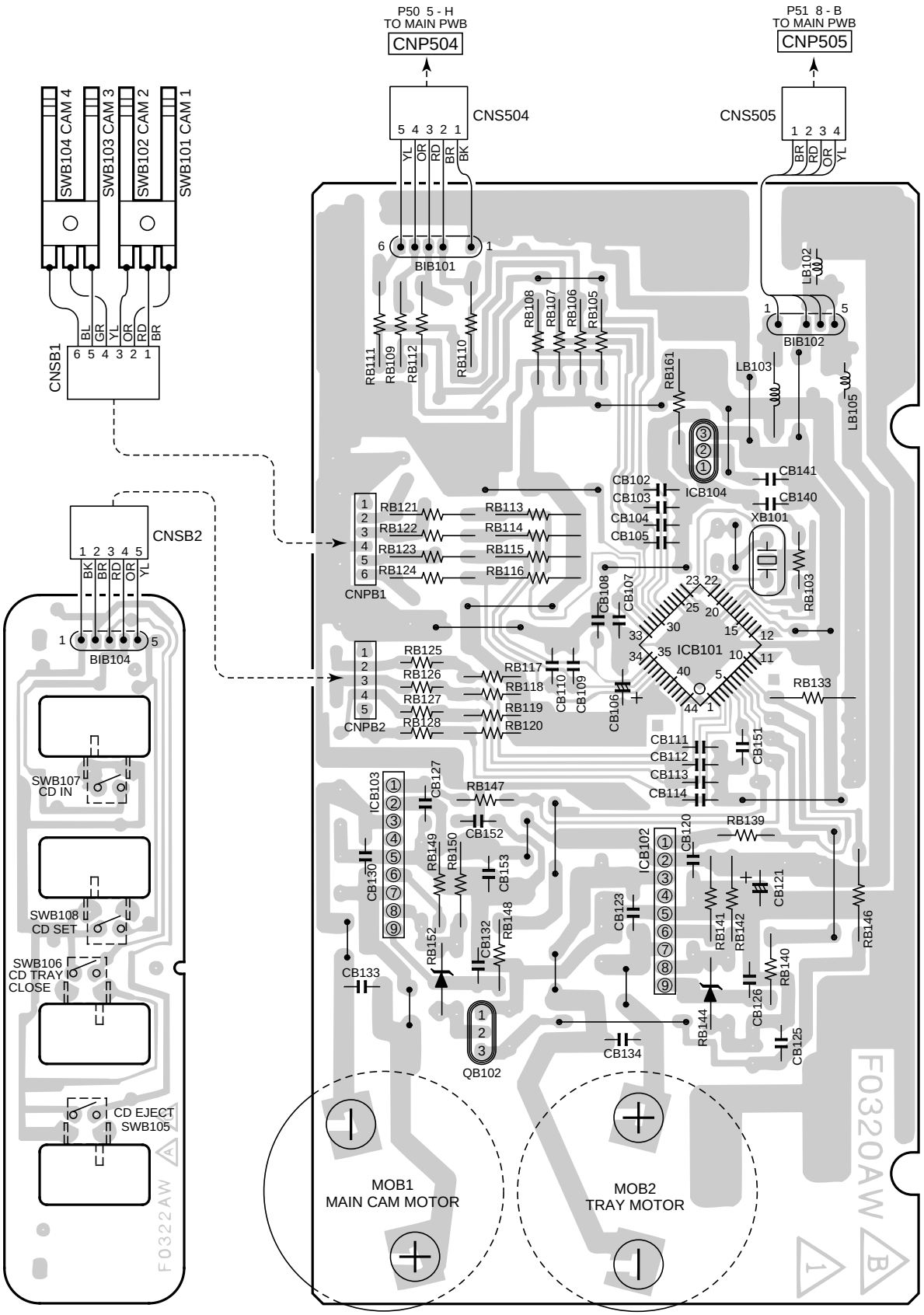
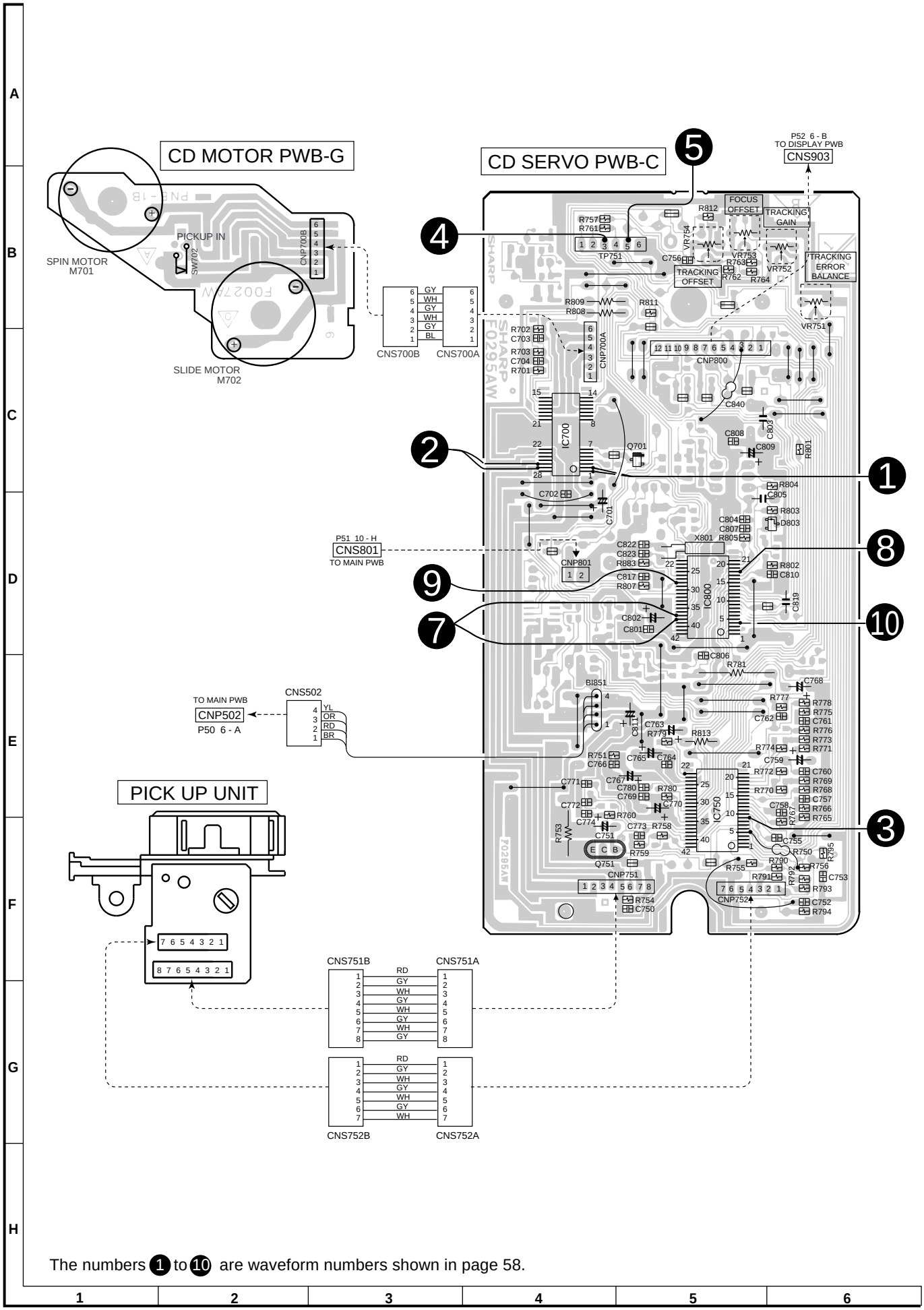


Figure 52 WIRIMG SIDE OF P.W.BOARD (3/8)



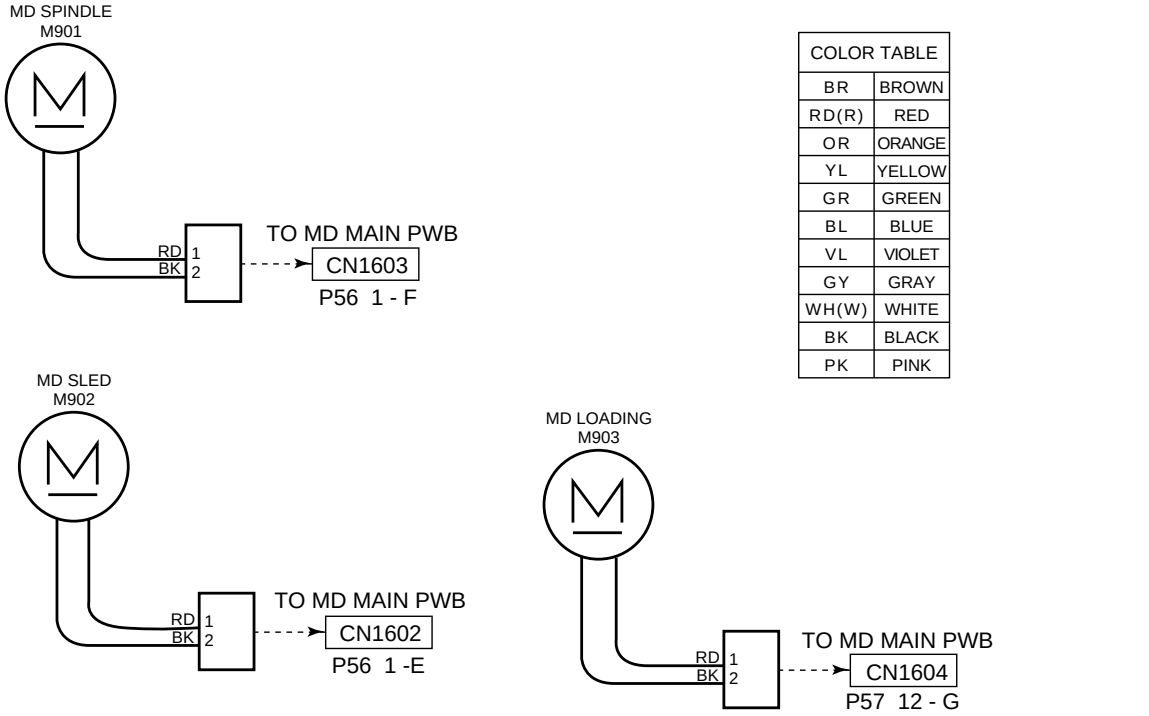
7	8	9	10	11	12

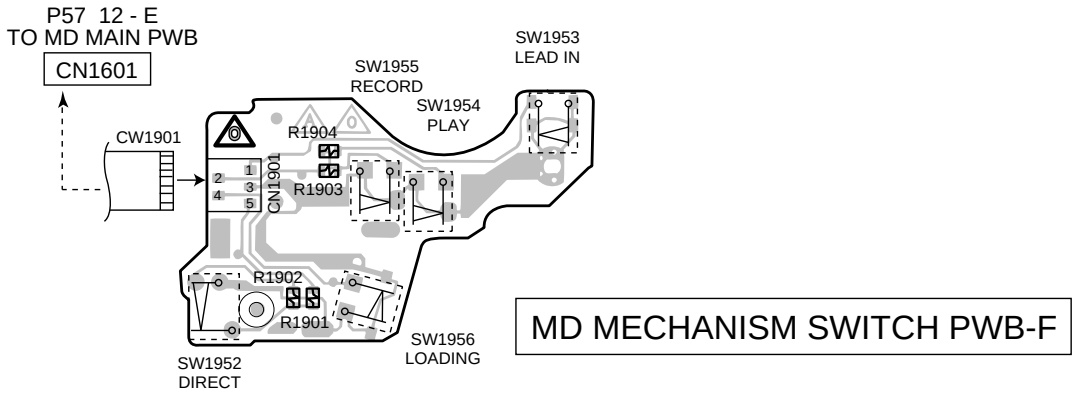
Figure 53 WIRIMG SIDE OF P.W.BOARD (4/8)

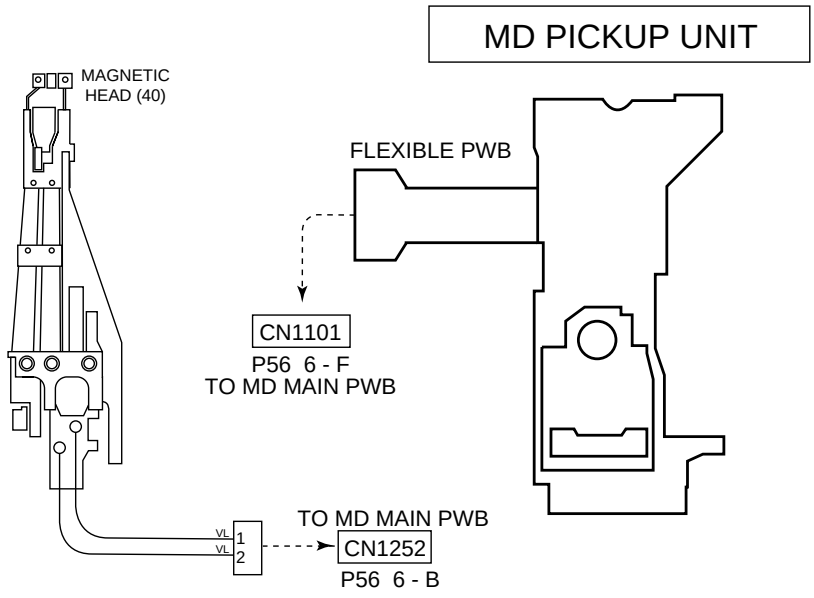


The numbers ❶ to ❿ are waveform numbers shown in page 58.

Figure 54 WIRIMG SIDE OF P.W.BOARD (5/8)

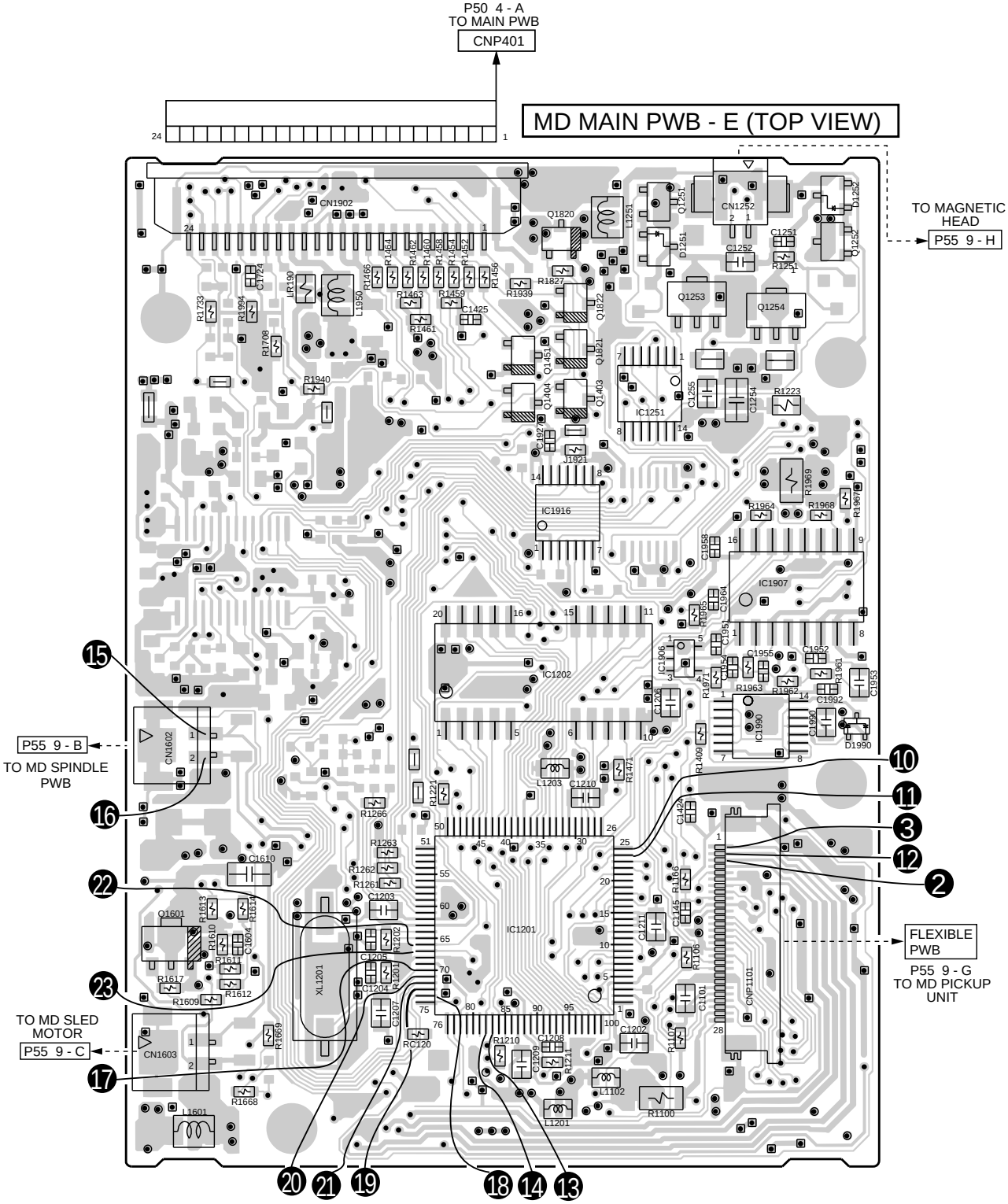






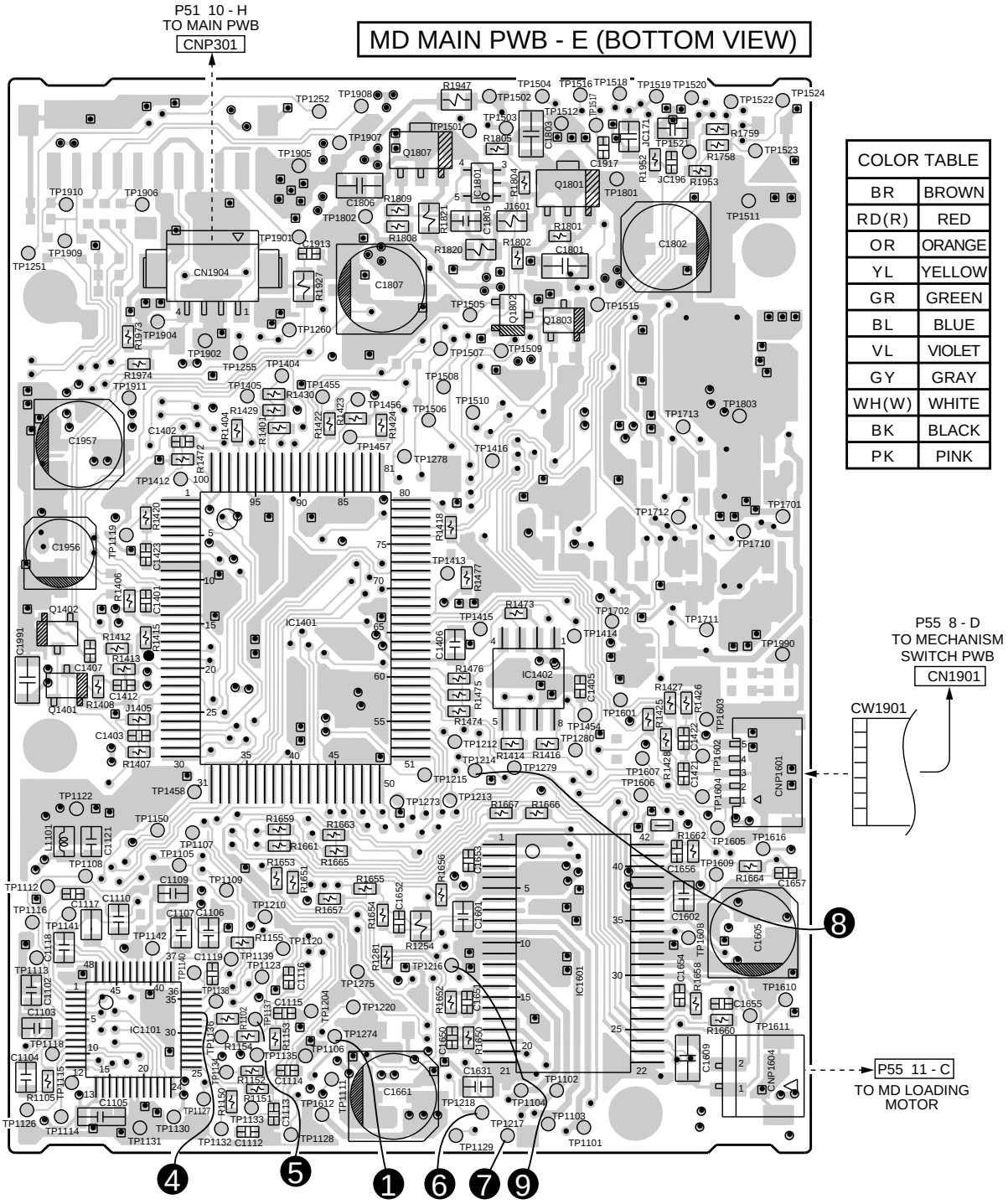
7	8	9	10	11	12

Figure 55 WIRIMG SIDE OF P.W.BOARD (6/8)



◉ :Through-hole where the top, bottom and +B patterns are connected.
▣ :Through-hole where the top, bottom and ground patterns are connected.
• :Through-hole where the top and bottom patterns are connected.
The numbers ❶ to ㉓ are waveform numbers shown in page 60, 61.

Figure 56 WIRIMG SIDE OF P.W.BOARD (7/8)



7	8	9	10	11	12

Figure 57 WIRIMG SIDE OF P.W.BOARD (8/8)

VOLTAGE (MD MAIN PWB)

Q1801	
PIN NO.	VOLTAGE
E	5V
C	5V
B	43V

Q1802	
PIN NO.	VOLTAGE
E	0V
C	0V
B	0.15V

Q1803	
PIN NO.	VOLTAGE
E	0V
C	0V
B	3.1V

Q1807	
PIN NO.	VOLTAGE
E	3.95V
C	3.2V
B	3.3V

Q1820	
PIN NO.	VOLTAGE
E	3.2V
C	3.18V
B	2.4V

Q1821	
PIN NO.	VOLTAGE
E	0V
C	0V
B	3.08V

Q1822	
PIN NO.	VOLTAGE
E	0V
C	0V
B	0.1V

Q1451	
PIN NO.	VOLTAGE
E	0V
C	3.18V
B	0.1V

Q1401	
PIN NO.	VOLTAGE
E	3.2V
C	3.2V
B	0V

Q1402	
PIN NO.	VOLTAGE
E	0V
C	0V
B	2.3V

Q1403	
PIN NO.	VOLTAGE
E	3.18V
C	0V
B	3.15V

Q1404	
PIN NO.	VOLTAGE
E	0V
C	3.15V
B	2.1V

Q1601	
PIN NO.	VOLTAGE
E	5.45V
C	4.4V
B	4.8V

IC1801	
PIN NO.	VOLTAGE
1	0V
2	44V
3	3.2V
4	3.1V
5	0V

IC1907	
PIN NO.	VOLTAGE
1	2.8V
2	2.6V
3	4.9V
4	2.6V
5	1.6V
6	0V
7	0V
8	4.9V
9	0V
10	2.2V
11	5V
12	5V
13	0V
14	3.2V
15	3.1V
16	5V

IC1990	
PIN NO.	VOLTAGE
1	1.45V
2	1.7V
3	1.45V
4	1.7V
5	1.45V
6	1.7V
7	0V
8	1.7V
9	1.45V
10	1.37V
11	1.7V
12	1.37V
13	1.7V
14	3.17V

IC1101	
PIN NO.	VOLTAGE
1	0.7V
2	0.7V
3	0.7V
4	0.7V
5	1.6V
6	1.6V
7	0.7V
8	1.6V
9	1.6V
10	1.6V
11	1.6V
12	1.6V
13	3.2V
14	3.2V
15	0V
16	Groove:3.2V Pit:0V
17	Low reflection:0V High reflection:3.2V
18	0V
19	0V
20	1.45V
21	3.2V
22	0V
23	0V
24	3.2V
25	1.78V
26	1.78V
27	1.35V
28	1.36V
29	1.6V
30	1.6V
31	1.6V
32	1.6V
33	1.6V
34	0V
35	1.6V
36	1.6V
37	0.3V
38	1.6V
39	1.6V
40	1.6V
41	1.6V
42	3.2V
43	0V
44	1V
45	1.6V
46	1.6V
47	0.7V
48	0.7V

IC1202	
PIN NO.	VOLTAGE
1	1.1V
2	1.1V
3	3V
4	2V
5	1.5V
6	1.8V
7	0.8V
8	2.4V
9	1.2V
10	3.2V
11	1.2V
12	2.5V
13	1.3V
14	1.7V
15	1.3V
16	2.2V
17	2.4V
18	1.2V
19	1.1V
20	0V

IC1201	
PIN NO.	VOLTAGE
1	1.48V
2	0V
3	1.6V
4	0V
5	1.36V
6	1.77V
7	1.6V
8	1.36V
9	1.77V
10	1.25V
11	1.6V
12	3.17V
13	0V
14	0V
15	0V
16	0V
17	1.45V
18	1.56V
19	1.62V
20	1.7V
21	1.5V
22	1.63V
23	1.53V
24	1.8V
25	1.4V
26	1.2V
27	2.5V
28	0.8V
29	1.8V
30	1.4V
31	3.2V
32	1.2V
33	2.5V
34	1.3V
35	1.7V
36	1.3V
37	2.2V
38	0V
39	2.4V
40	1.2V
41	1.1V
42	1.5V
43	2V
44	3V
45	1.1V
46	1.1V
47	0V
48	3V
49	1.56V
50	PLAY:0V REC:1.5V
51	58V
52	0V
53	0V
54	58V
55	0V
56	0V
57	3.2V
58	3.2V
59	3.2V
60	3.17V
61	0V
62	3.17V
63	0V
64	1.3V
65	1.3V
66	DIC input:1.58V Other:0V
67	1.58V
68	3.17V
69	0V
70	1.5V
71	1.55V
72	1.5V
73	0V
74	1V
75	1.55V
76	1.8V
77	1.56V
78	0V
79	0V
80	3.16V
81	0V
82	0V
83	0V
84	1.5V
85	1.5V
86	3.1V
87	3.17V
88	0V
89	3.17V
90	0.5V
91	0.6V
92	0.4V
93	0.4V
94	0.4V
95	0.9V
96	0.7V
97	0.8V
98	3.16V
99	3.15V
100	0V

IC1401	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0.2V
4	3.2V
5	0V
6	0V
7	3.1V
8	0V
9	0V
10	0V
11	0V
12	3.18V
13	144V
14	0V
15	1.5V
16	3.2V
17	3.2V
18	3.1V
19	0V
20	0V
21	0V
22	3.15V
23	3.2V
24	0V
25	3.2V
26	3.2V
27	0V
28	0V
29	2V
30	3.2V
31	0V
32	3.2V
33	0V
34	0.8V
35	2.2V
36	0.2V
37	2.3V
38	0V
39	PLAY:3.15V REC:0V
40	0V
41	0V
42	0V
43	3.2V
44	0V
45	0V
46	3.15V
47	0V
48	0V
49	0V
50	0V
51	0V
52	0V
53	0V
54	0V
55	0V
56	0V
57	0V
58	0V
59	3.2V
60	0V
61	3.2V
62	3.2V
63	0V
64	0V
65	3.2V
66	3.2V
67	3.2V
68	0V
69	0V
70	3.1V
71	0V
72	3.1V
73	97A:0V 97B:3.2V
74	0V
75	3.2V
76	3.2V
77	0V
78	0V
79	0V
80	3.15V
81	0V
82	0V
83	3.2V
84	3.2V
85	3.2V
86	3.2V
87	3.2V
88	3.2V
89	1.7V
90	1.8V
91	1.8V
92	1.4V
93	Low reflectio:2.2V High reflection:0.1V
94	3.2V
95	3.2V
96	0V
97	2V
98	3.2V
99	3.2V
100	0V

IC1601	
PIN NO.	VOLTAGE
1	1.25V
2	4V
3	1.5V
4	5.5V
5	5.5V
6	1.5V
7	5V
8	2.7V
9	2.8V
10	0V
11	0V
12	2.7V
13	2.76V
14	1.6V
15	1.6V
16	1.6V
17	3.15V
18	3.15V
19	0V
20	1.6V
21	1.6V
22	1.6V
23	1.23V
24	1.23V
25	1.6V
26	1.6V
27	1.62V
28	2.7V
29	2.8V
30	2.7V
31	2.7V
32	0V
33	0V
34	3.0V
35	2.4V
36	0V
37	1.64V
38	5.5V
39	5.5V
40	1.64V
41	1.68V
42	1.68V

IC1251	
PIN NO.	VOLTAGE
1	2.6V
2	2.6V
3	0.1V
4	2.6V
5	2.6V
6	0.1V
7	0V
8	1.56V
9	0.1V
10	2.6V
11	1.56V
12	0.1V
13	2.6V
14	5.2V

Q1251	
PIN NO.	VOLTAGE
D	4.4V
S	1.4V
G	2.6V

Q1252	
PIN NO.	VOLTAGE
D	4.4V
S	1.4V
G	2.6V

Q1253	
PIN NO.	VOLTAGE
D	15V
S	0V
G	2.6V

Q1254	
PIN NO.	VOLTAGE
D	15V
S	0V
G	2.6V

IC1916	
PIN NO.	VOLTAGE
1	1.58V
2	3.2V
3	1.58V
4	3.2V
5	DIC input:2.2V Other:0V
6	DIC input:1.58V Other:0V
7	1.55V
8	2.2V
9	3.2V
10	3.2V
11	97A:3.2V 97B:1V
12	97A:3.2V 97A:0.9V

IC1402	
PIN NO.	VOLTAGE
1	0V
2	3.2V
3	3.2V
4	3.2V
5	0V
6	0V
7	0V
8	0V

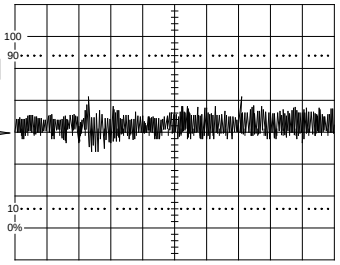
IC1906	
PIN NO.	VOLTAGE
1	5.5V
2	1.6V
3	0V
4	2.8V
5	5.5V

WAVEFORMS OF CD CIRCUIT

❶ IC700 ①, ②
2V/1mS (DC range)
[Disc playback mode]

Potential difference 0V →

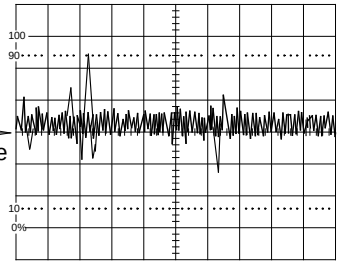
Disc free from flaw



Disc having flaw
(the same as above)

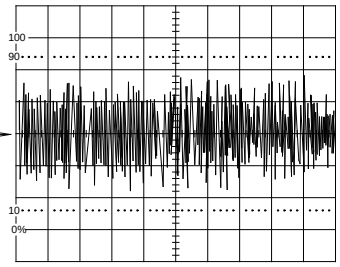
Potential difference 0V →

If a flaw exists, pulse-like noise appears as shown right.
Noise appears also in output of ❷ and TE or FE signal.



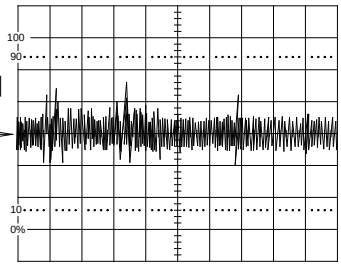
❷ IC700 ⑪, ⑫
0.5V/0.5mS
(Dc range)
[Disc playback mode]

Potential difference 0V →

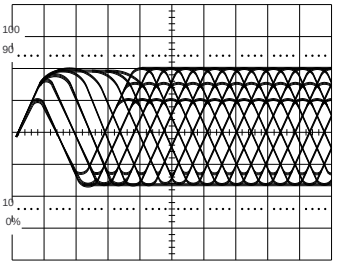


❸ IC750 ⑨
50mV/2mS
[Disc playback mode]

1/2VCC →

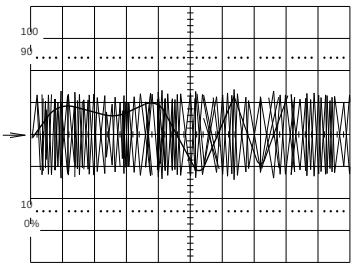


❹ TP751 ③
0.2V/0.5µS
(AC range)
[Disc playback mode]



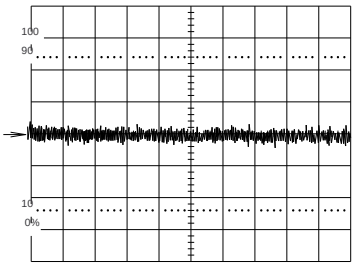
❺ TP751 ④
0.2V/1mS
(DC range)
In test mode 3

1/2VCC →

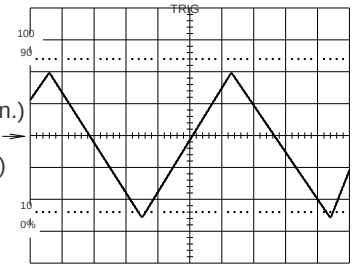


0.2V/1mS (DC range)
[Disc playback mode]

1/2VCC →

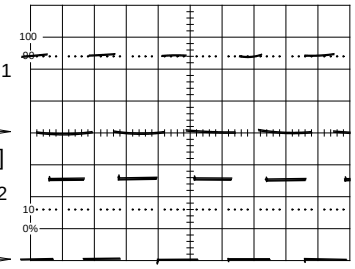


❻ IC750 ㉒
In test mode 2
(disc is not loaded.
Lens is moved up and down.)
1/2VCC →
200mV/0.5S (DC range)
* Observation with the aid of storage oscilloscope
Only the triangular wave and luminous dot shown right are observed on oscillograph.

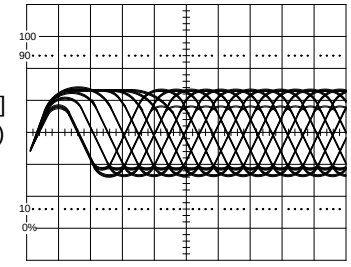


❼ IC800 ㊲, ㊳
Disc motor
PWM output
0.2V/10µS
(DC range)
[Disc playback mode]
(Use the 10:1 probe.)

PWM1
GND →
PWM2
GND →

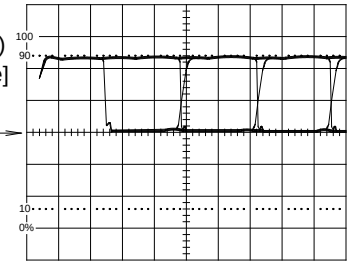


❽ IC800 ⑲
20mV/0.5µS
(AC range)
[Disc playback mode]
(Use the 10:1 probe.)



❾ IC800 ㉘
2V/0.1µS (DC range)
[Disc playback mode]

GND →



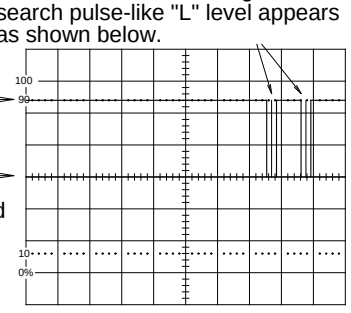
* If disc has flaw or during track search pulse-like "L" level appears as shown below.

❿ IC800 ④
2Vdiv (DC range)

Playback mode, 4.8V →

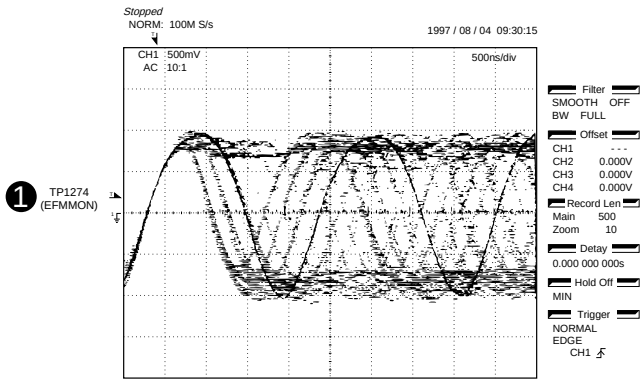
Stop mode, 0V →

When the disc rotates and the HF signal is synchronized with the IC internal signal, H level is set.

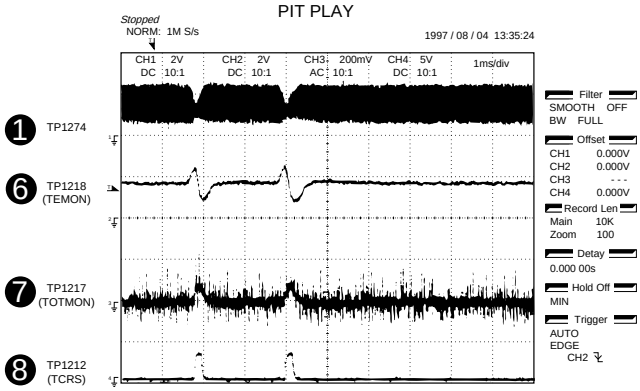


WAVEFORMS OF MD CIRCUIT

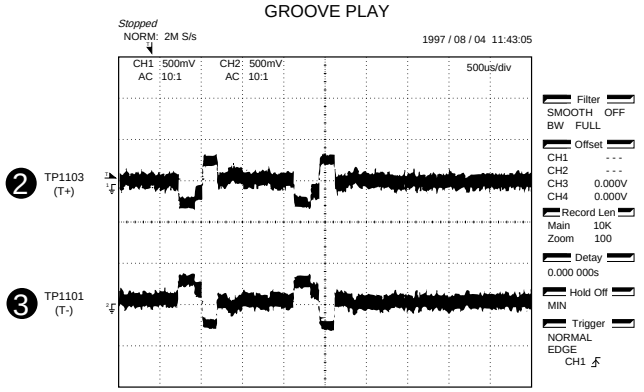
PLAY STATE


Stopped
NORM: 100M S/s
1997 / 08 / 04 09:30:15
CH1 500mV AC 10:1
500ns/div
1 TP1274 (EFMMON)
Filter SMOOTH OFF BW FULL
Offset CH1 --- CH2 0.000V CH3 0.000V CH4 0.000V
Record Len Main 500 Zoom 10
Detay 0.000 000 000s
Hold Off MIN
Trigger NORMAL EDGE CH1

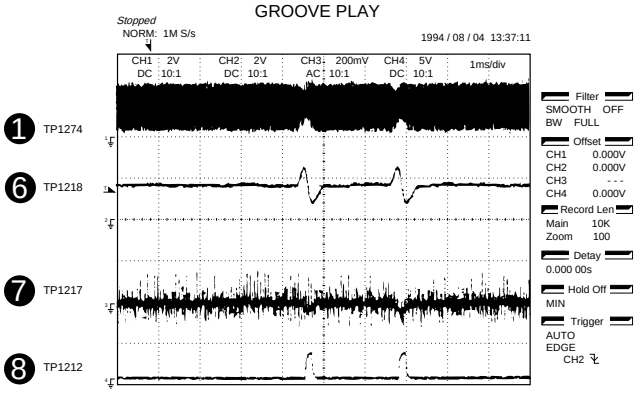
PIT PLAY



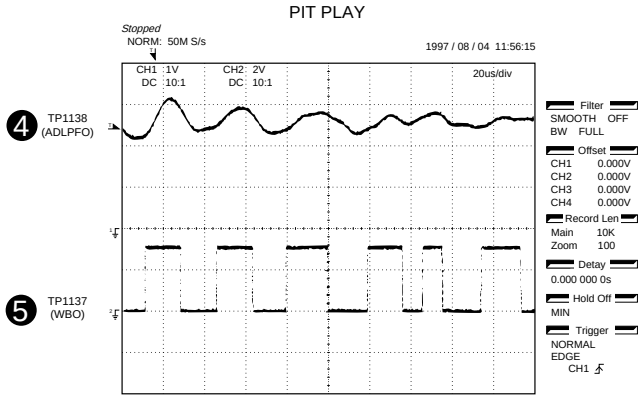
GROOVE PLAY



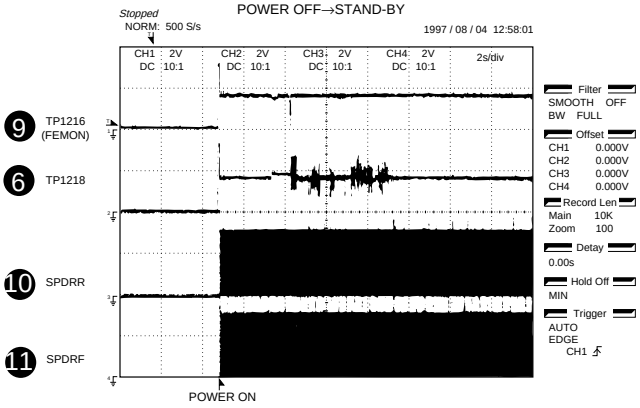
GROOVE PLAY



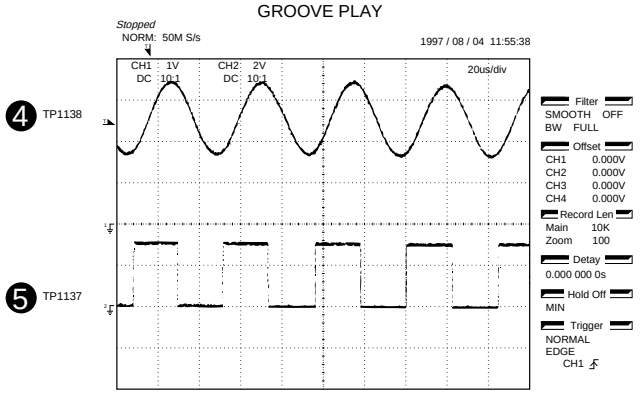
PIT PLAY


Stopped
NORM: 50M S/s
1997 / 08 / 04 11:56:15
CH1 1V DC 10:1
CH2 2V DC 10:1
20us/div
4 TP1138 (ADLPFO)
5 TP1137 (WBO)
Filter SMOOTH OFF BW FULL
Offset CH1 0.000V CH2 0.000V CH3 0.000V CH4 0.000V
Record Len Main 10K Zoom 100
Detay 0.000 000 0s
Hold Off MIN
Trigger NORMAL EDGE CH1

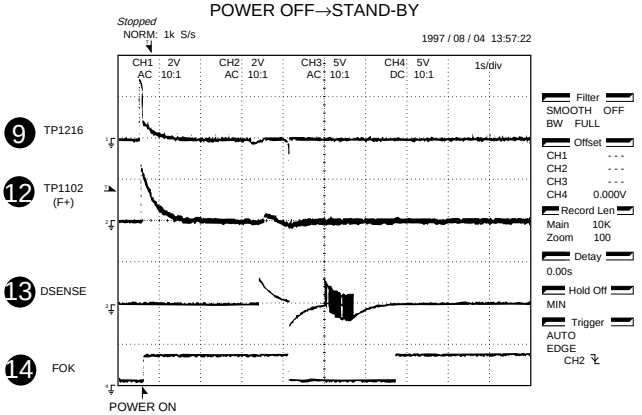
POWER OFF→STAND-BY

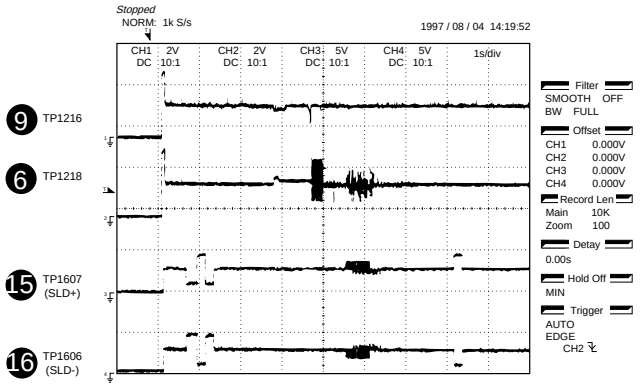


GROOVE PLAY

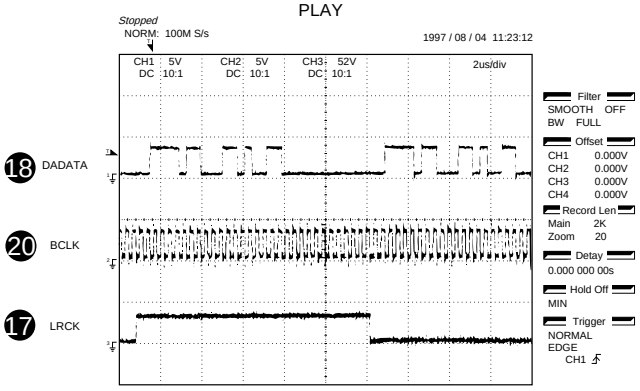


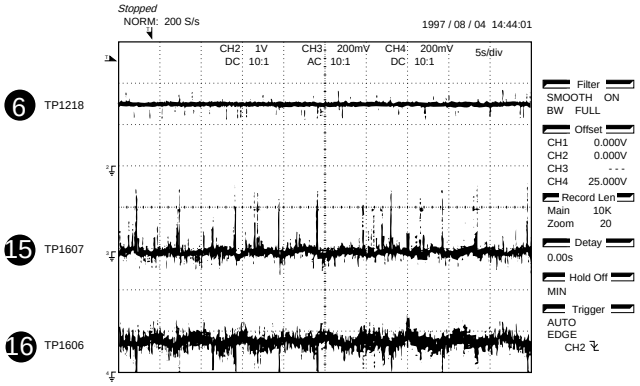
POWER OFF→STAND-BY



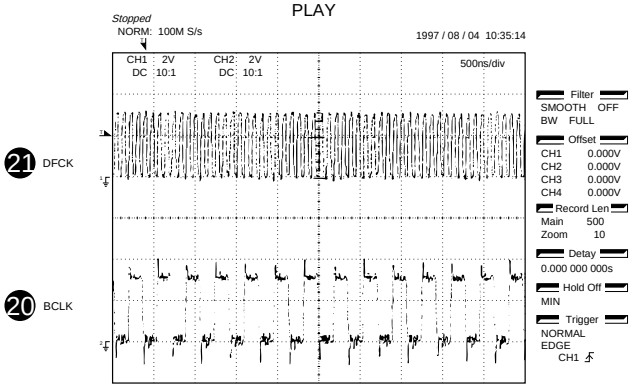


PLAY

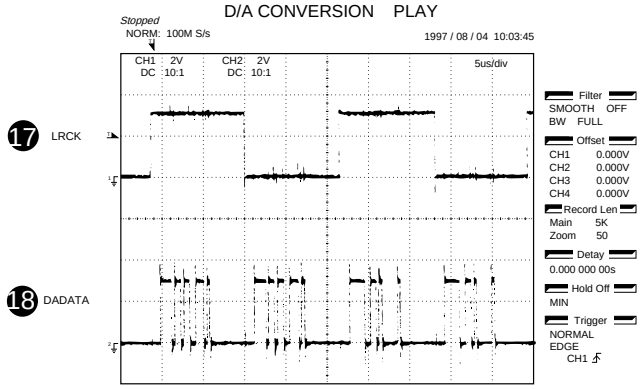




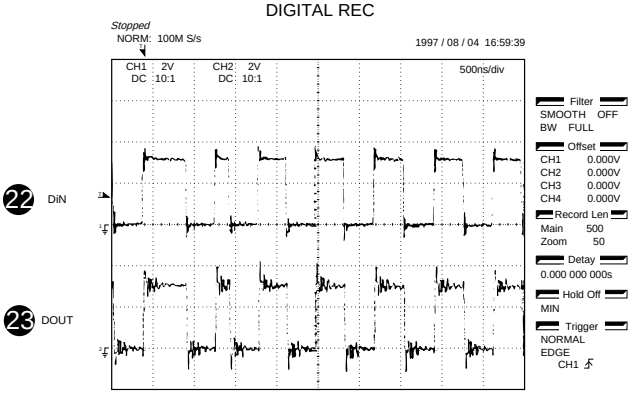
PLAY



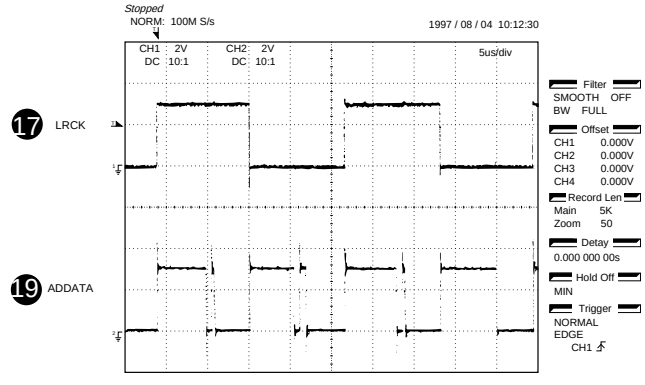
D/A CONVERSION PLAY



DIGITAL REC



A/DCONVERSION ANALOG REC (NO SIGNAL)

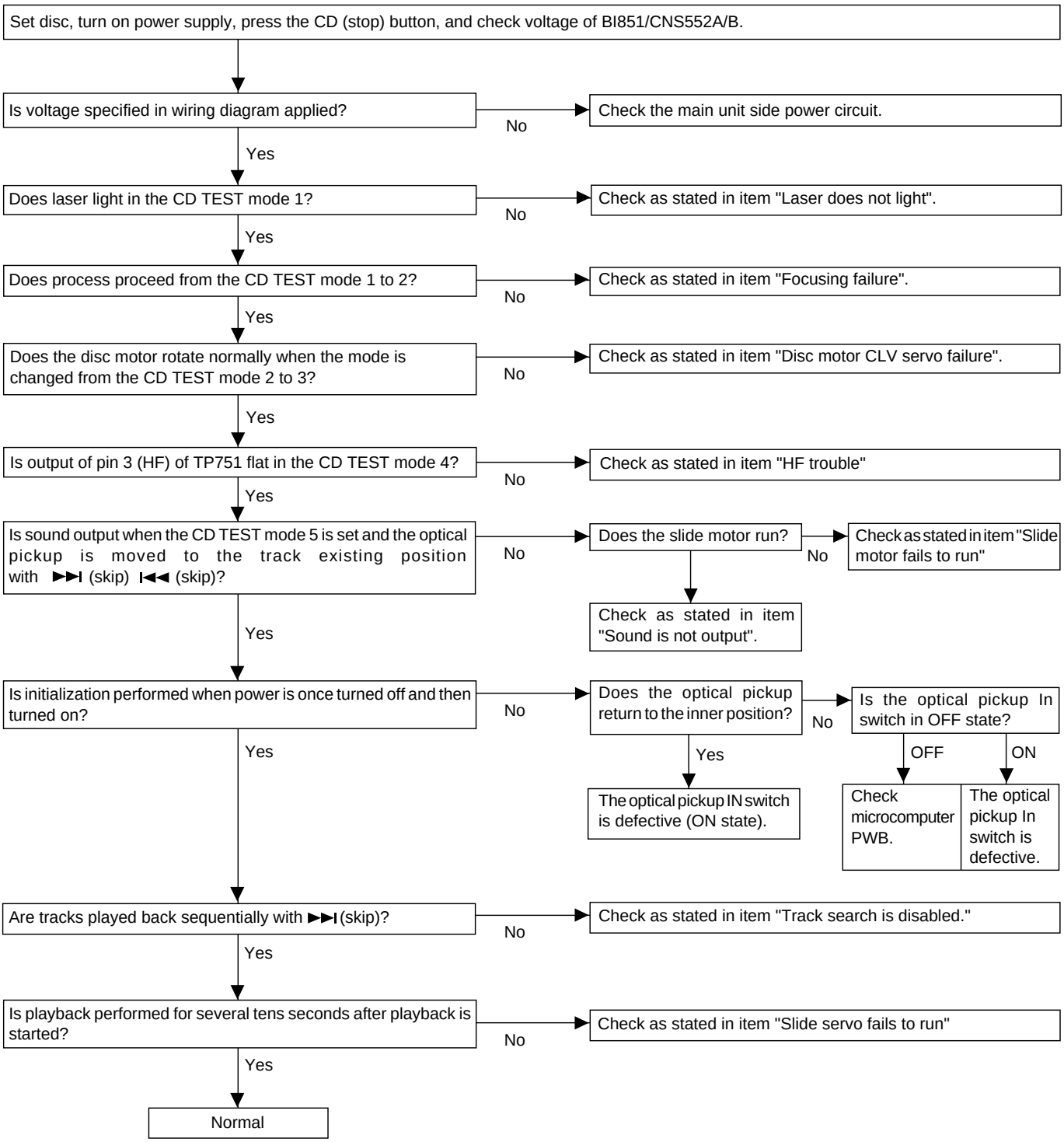


TROUBLE SHOOTING (CD SECTION)

CD fails to operate

If the objective lens of optical pickup is contaminated, CD may fail to operate. At first clean the objective lens, and check playback operation. If CD does not operate persistently, check as follows.
If dust or foreign substance is accumulated on the pickup lens, playback is disturbed and TOC (content of item) is not displayed. Before adjusting check whether the lens is clean. If the lens is contaminated, treat it as follows.

Turn off power supply, impregnate the lens cleaning paper with a small quantity of isopropyl alcohol, and gently wipe the lens with it with due care so that the lens is not damaged.
At this time do not contact directly the lens with our finger.


Set disc, turn on power supply, press the CD (stop) button, and check voltage of BI851/CNS552A/B.
Is voltage specified in wiring diagram applied?
No
Check the main unit side power circuit.
Yes
Does laser light in the CD TEST mode 1?
No
Check as stated in item "Laser does not light".
Yes
Does process proceed from the CD TEST mode 1 to 2?
No
Check as stated in item "Focusing failure".
Yes
Does the disc motor rotate normally when the mode is changed from the CD TEST mode 2 to 3?
No
Check as stated in item "Disc motor CLV servo failure".
Yes
Is output of pin 3 (HF) of TP751 flat in the CD TEST mode 4?
No
Check as stated in item "HF trouble"
Yes
Is sound output when the CD TEST mode 5 is set and the optical pickup is moved to the track existing position with ►►I (skip) I◄◄ (skip)?
No
Does the slide motor run?
No
Check as stated in item "Slide motor fails to run"
Check as stated in item "Sound is not output".
Yes
Is initialization performed when power is once turned off and then turned on?
No
Does the optical pickup return to the inner position?
No
Is the optical pickup In switch in OFF state?
Yes
OFF
ON
The optical pickup IN switch is defective (ON state).
Check microcomputer PWB.
The optical pickup In switch is defective.
Yes
Are tracks played back sequentially with ►►I (skip)?
No
Check as stated in item "Track search is disabled."
Yes
Is playback performed for several tens seconds after playback is started?
No
Check as stated in item "Slide servo fails to run"
Yes
Normal

• Laser does not light

Is 5V applied to the pin 13 CD LD ON terminal of IC901?
- No → IC901 is defective.
- Yes ↓

Is +4.0V applied to the emitter of Q751?
- No → Is +5V applied to the C751 side of R753?
  - No → R753 is defective.
  - Yes ↓ Check the pin 2 of BI851/CNS552A/B, and check +5V line of SERVO.
- Yes ↓

Is +1.8V applied to the collector of Q701.
- No → Is +3.2V applied to the base of Q751?
  - No → Check between the base of Q751 and the pin 6 of IC750.
  - Yes ↓ Q751 is defective.
- Yes ↓

Is +1.8V applied to the pin 8 of CNP751?
- No → PWB pattern breakage between Q751 and pin 8 of CNP751
- Yes ↓

Check CNP751. If it is normal, the optical pickup is defective.

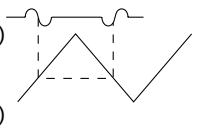
• Focusing failure

Remove disc, and check whether the optical pickup lens moves up and down.
- No → Check as stated in item "Triangular wave for focus servo is not output".
- Yes ↓

Set disc, and check whether the following waveform appears on the pin 8 of IC750.
- No → Set disc, and check whether the following waveform appears on the pin 8 of IC750.
- Yes ↓

8 PIN (FE OUT)

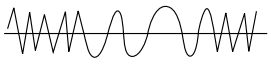
22 PIN (FS OUT)



IC750 is defective.

• HF trouble

Does output (tracking error signal) appear on the pin 4 of TP751 in the CD TEST mode 3?
- Abnormal → Check CNP751. If it is normal, the optical pickup is defective.
- Normal ↓



Is the tracking gain adjusting VR752 set to minimum?
- Yes → Adjust again tracking gain.
- No ↓

Does tracking output appear on the pin 17 of IC750 in the CD TEST mode 4?
- No → Check the peripheral parts of IC750. If it is normal, IC750 is defective.
- Yes ↓

Does output appear between the pins 26 and 27 of IC700?
- No → Check the peripheral parts of IC700. If it is normal, IC700 is defective.
- Yes ↓

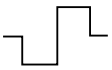
Check connection of optical pickup wire between IC700 and CNP751. If it is normal, the optical pickup is defective.

• Track search failure

Set the TEST mode, and check whether the slide motor is started with ►►I (skip) I◄◄ (skip).
- No → Check as stated in item "Slide motor fails to run".
- Yes ↓

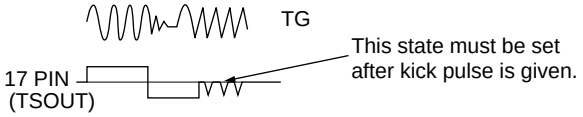
Is the following waveform output to the pin 29 of IC750 in track jump state?
- No → IC750 is defective.
  * The sate where the following waveform is output to the pin 17 of IC750 is referred to as track jump state.
- Yes ↓

Kick Pluse



Synchronization is set on the pin 28 (JPI) of IC750.

Is the following waveform output to the pin 17 of IC750 in track search mode?
- No → IC750 is defective.
- Yes ↓



Check the display PWB.

• Triangular wave for focus servo is not output.

Is +5V applied to the pin 36 of IC750?
- No → +5V line of IC750 is defective.
- Yes ↓

Is triangular wave observed on the pin 22 of IC750?
- No → Is the following triangular waveform observed?
  - No → Check the pins 34 and 35 of IC750, R780 and C769. If OK, IC750 is defective. (Check also the line of pins 30, 31, and 33 of IC901.)
  - Yes (the wave swings once to + side.)

- Yes ↓

1~2 sec.

Check the periphery of pin 23 of IC750. If it is normal, IC750 is defective.

Is triangular wave input into the pin 3 of IC700? (Waveform shown above)
- No → Signal line connection failure between pin 22 of IC750 and pin 3 of IC700
- Yes ↓

Does saw-toothed wave appear between pins 1 and 2 of IC700?
- No → Check the peripheral parts of IC700 and power line. If they are normal, IC700 is defective.
- Yes ↓

Saw-toothed waveform

Does saw-toothed wave appear between pins 3 and 4 of CNP751?
- Yes → CNP751 connection failure or optical pickup failure
- No ↓

PWB pattern breakage

• Sound is not output.

IIs digital signal output from the pin 6 (digital OUT) of CNP301?
- No → Check the pin 28 of IC800.
- Yes ↓

Is digital signal sent to the MD PWB and CN1904 pin 4?
- No → Check Main and MD connection.
- Yes ↓

Is audio signal output from the pins 24 an 26 of IC201?
- No → Check connection of IC1201 and IC201.
- Yes ↓

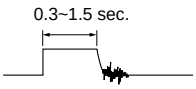
OK

• Spindle motor CLV servo failure

Does the spindle motor run in the CD TEST mode3?

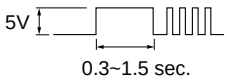
No → Is voltage generated for about 0.3 to 1.5 sec between the pins 17 and 18 of IC700 when the mode is changed from the CD TEST mode 2 to 3?

Yes → Spindle motor failure or wire breakage.



No → Is the pin 37 of IC800 in High state for 0.3 to 1.5 sec when the CD TEST mode 2 is changed to 3? Does pulse appear subsequently?

No → IC800 is defective.



Yes → IC700 failure or wire breakage.

Yes (Extremely high speed rotation)

Does eye pattern appear on the pin 3 of TEST point TP751? (Unclear waveform is allowable.)

No → Check again for contamination of objective lens of optical pickup. If it is contaminated, clean.
Check connection between the pin 41 of IC750 and the pin 19 of IC800. If it is normal, the optical pickup is defective.

Yes → Is eye pattern Vp-p 1.5V input into the pin 19 of IC800?

No → Check the PWB pattern and C806.

Yes → IC800 failure. (check the peripheral parts and then replace)

• Slide motor fails to run.

S et the CD TEST mode, press the ►►I (skip) I◄◄ (skip) button, and check whether slide feed signal is output between the pin 20 of IC750 and 1/2VCC.

No → Check connection of peripheral parts of IC750. If it is normal, IC750 is defective.

Yes → Is slide feed signal output between the pins 11 and 12 of IC700?

No → Check connection between the pin 25 of IC700 and the pin 20 of IC750.

Yes → Is slide feed voltage applied to both ends of slide motor?

No → Check the PWB pattern.

Yes → Check the slide motor. Apply DC2.0V to the slide motor terminal. If the slide motor fails to run, it is defective.

• Slide servo fails to operate.

Is slide control voltage waveform (shown right) input into the pin 18 of IC750 during playback?

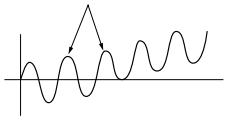
No → Check connection of parts between the pins 17 and 18 of IC750 and the PWB pattern.

Yes → Is waveform shown right output to the pin 20 of IC750?

No → IC750 is defective.

Yes → The slide servo system is not defective. Redo check.

Rotation cycle of motor



Voltage varies depending on eccentricity.

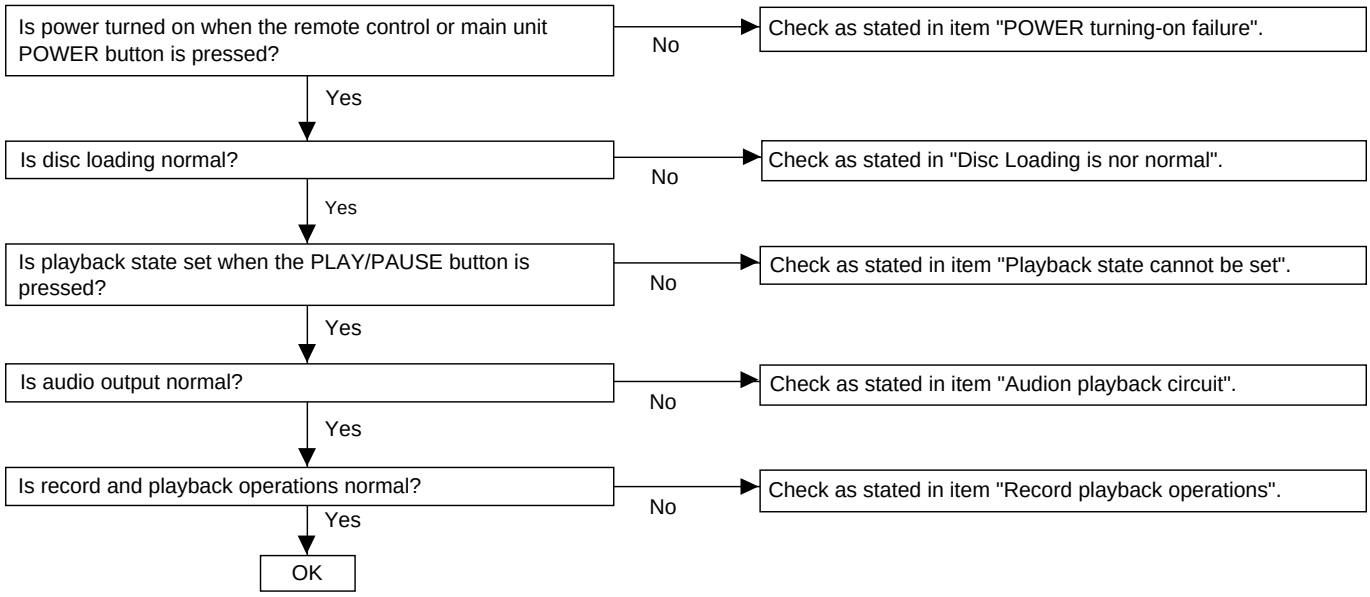
Slide control voltage waveform

TROUBLE SHOOTING (MD SECTION)

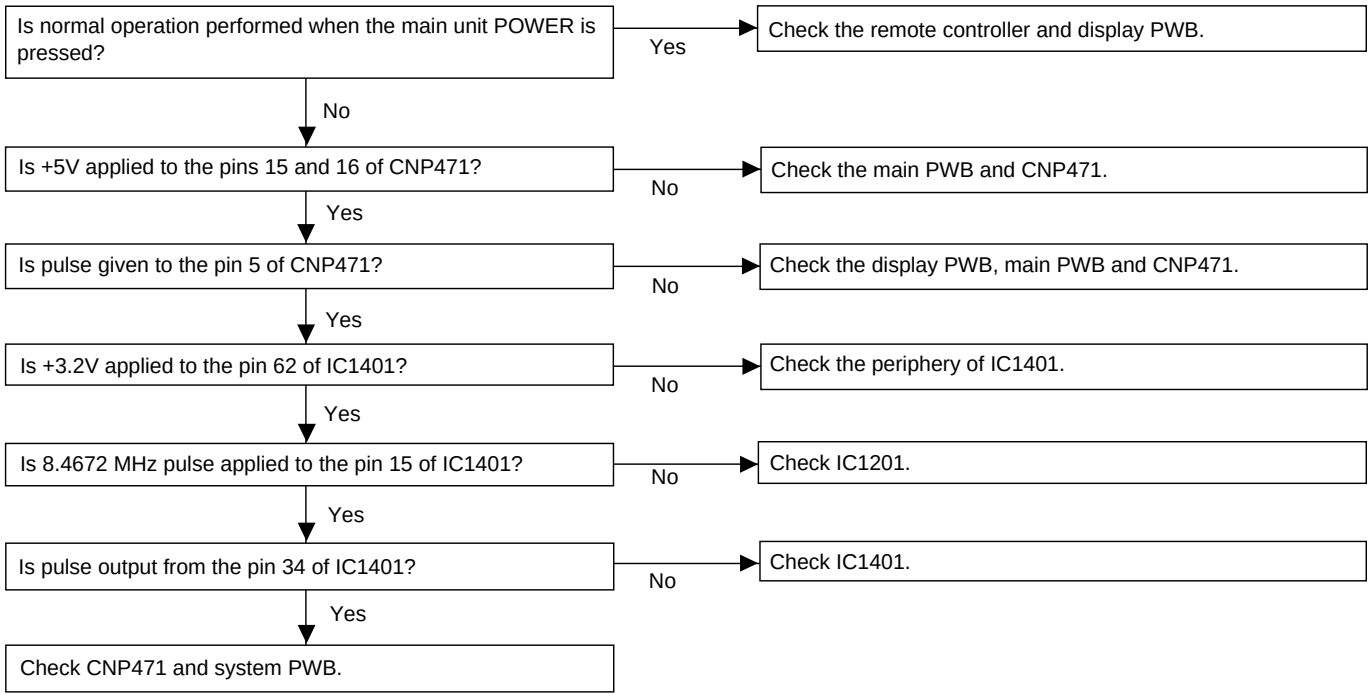
When MD fails operate

If the objective lens of optical pickup is contaminated, MD may fail to operate. At first, clean the objective lens to check playback operation. If MD fails persistently to operate, perform checks as follows.
If dust or foreign substance is accumulated on the pickup lens, playback is disturbed and indication of TOC (content of tracks) may be disabled. Before adjusting check that the lens is clean. If the lens is contaminated, treat it as follows.

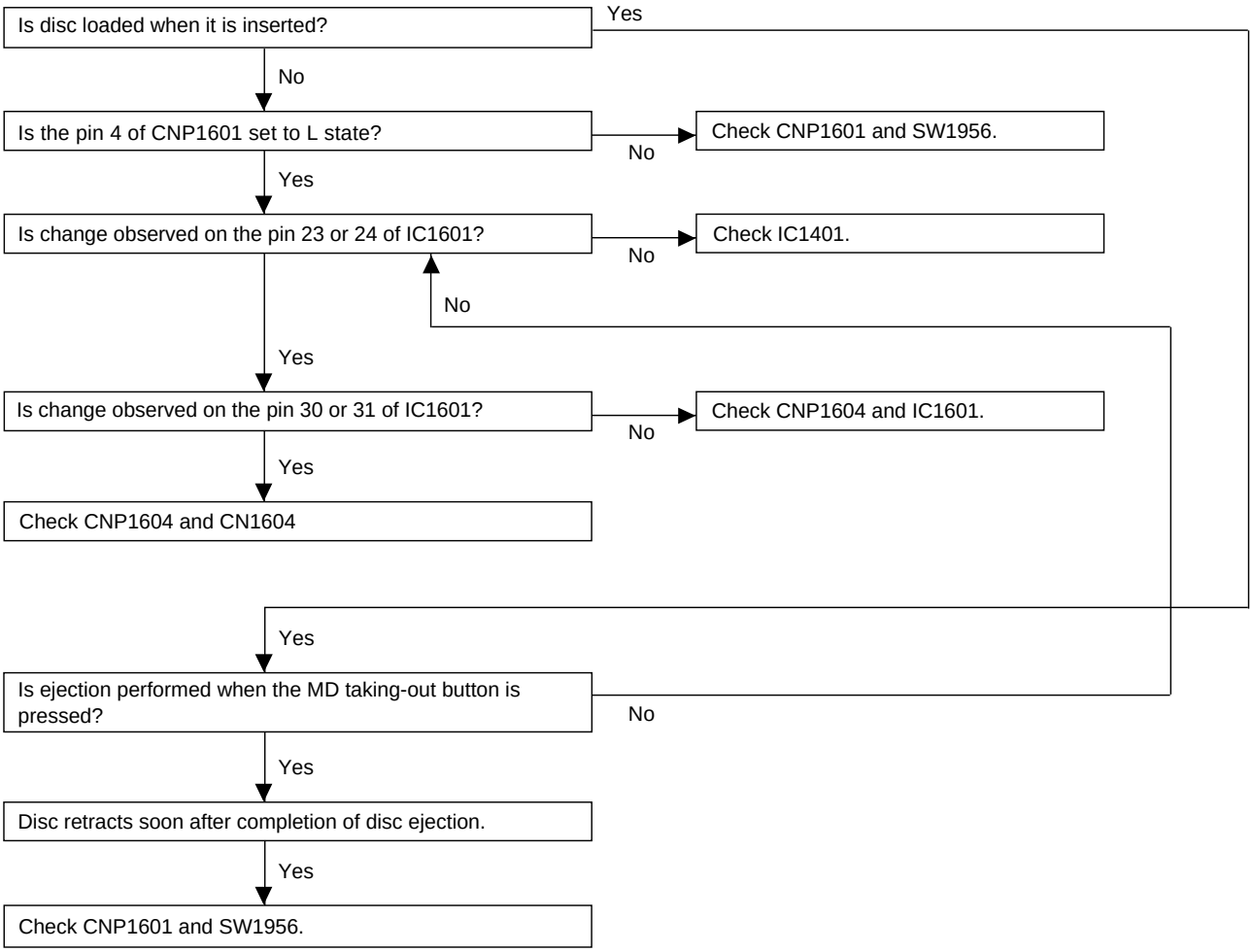
Turn off power supply, impregnate the lens cleaning paper with a small quantity of isopropyl alcohol, and gently wipe the lens with it with due care so that the lens is not damaged. At this time do not touch the lens directly with your finger.


Is power turned on when the remote control or main unit POWER button is pressed?
No
Check as stated in item "POWER turning-on failure".
Yes
Is disc loading normal?
No
Check as stated in "Disc Loading is nor normal".
Yes
Is playback state set when the PLAY/PAUSE button is pressed?
No
Check as stated in item "Playback state cannot be set".
Yes
Is audio output normal?
No
Check as stated in item "Audion playback circuit".
Yes
Is record and playback operations normal?
No
Check as stated in item "Record playback operations".
Yes
OK

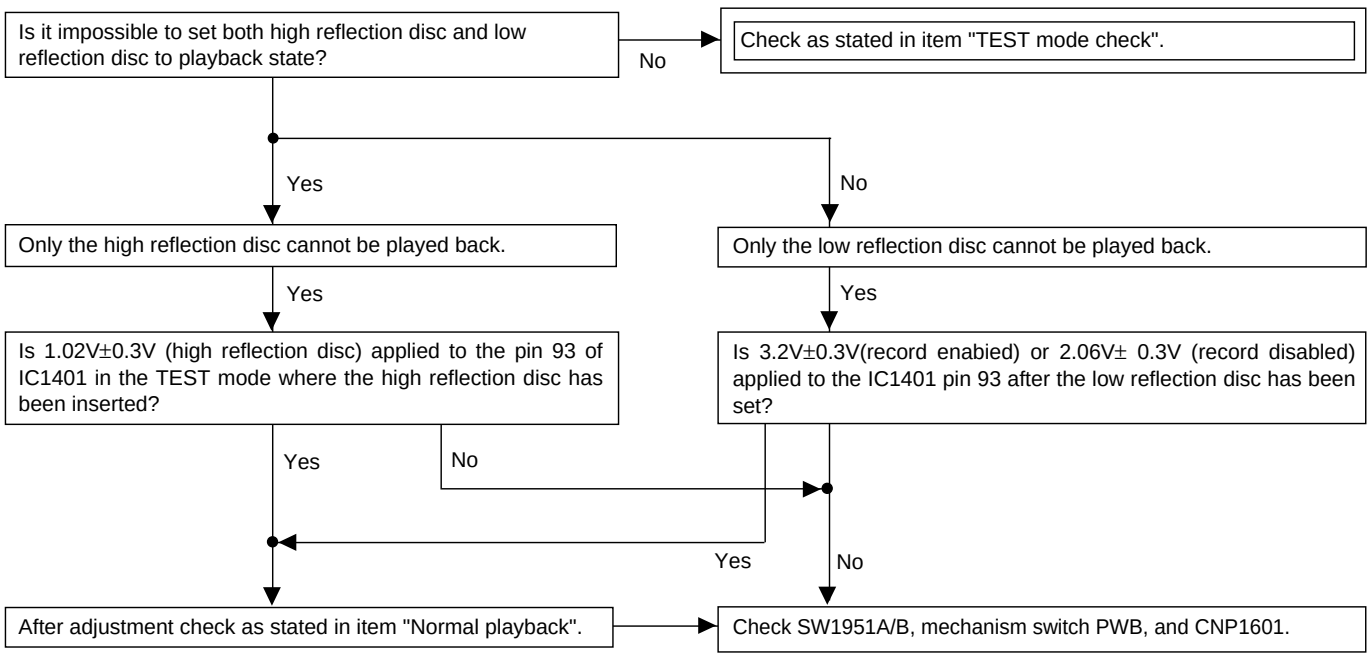
- **Power turning-on failure.**


Is normal operation performed when the main unit POWER is pressed?
Yes
Check the remote controller and display PWB.
No
Is +5V applied to the pins 15 and 16 of CNP471?
No
Check the main PWB and CNP471.
Yes
Is pulse given to the pin 5 of CNP471?
No
Check the display PWB, main PWB and CNP471.
Yes
Is +3.2V applied to the pin 62 of IC1401?
No
Check the periphery of IC1401.
Yes
Is 8.4672 MHz pulse applied to the pin 15 of IC1401?
No
Check IC1201.
Yes
Is pulse output from the pin 34 of IC1401?
No
Check IC1401.
Yes
Check CNP471 and system PWB.

• Disc loading is not normal.

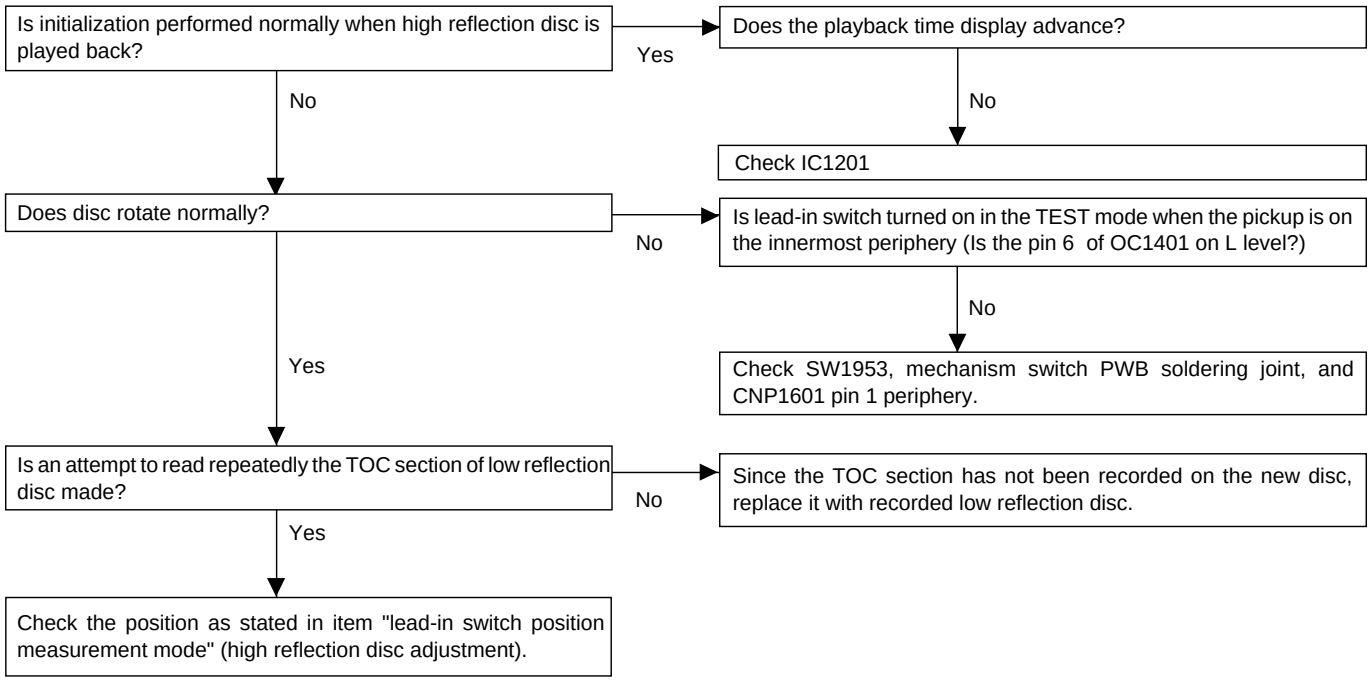


• Playback state cannot be set.


Is it impossible to set both high reflection disc and low reflection disc to playback state?
No
Check as stated in item "TEST mode check".
Yes
No
Only the high reflection disc cannot be played back.
Only the low reflection disc cannot be played back.
Yes
Yes
Is 1.02V±0.3V (high reflection disc) applied to the pin 93 of IC1401 in the TEST mode where the high reflection disc has been inserted?
Is 3.2V±0.3V(record enabied) or 2.06V± 0.3V (record disabled) applied to the IC1401 pin 93 after the low reflection disc has been set?
Yes
No
Yes
No
After adjustment check as stated in item "Normal playback".
Check SW1951A/B, mechanism switch PWB, and CNP1601.

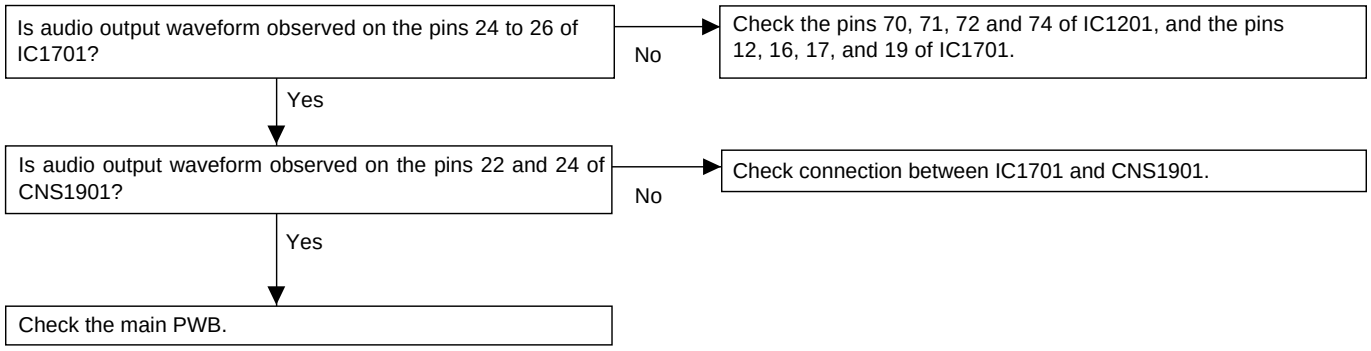
• Normal playback

When it has been confirmed that EEPROM value is normal in the TEST mode


Is initialization performed normally when high reflection disc is played back?
Yes
Does the playback time display advance?
No
Check IC1201
No
Does disc rotate normally?
No
Is lead-in switch turned on in the TEST mode when the pickup is on the innermost periphery (Is the pin 6 of OC1401 on L level?)
No
Check SW1953, mechanism switch PWB soldering joint, and CNP1601 pin 1 periphery.
Yes
Is an attempt to read repeatedly the TOC section of low reflection disc made?
No
Since the TOC section has not been recorded on the new disc, replace it with recorded low reflection disc.
Yes
Check the position as stated in item "lead-in switch position measurement mode" (high reflection disc adjustment).

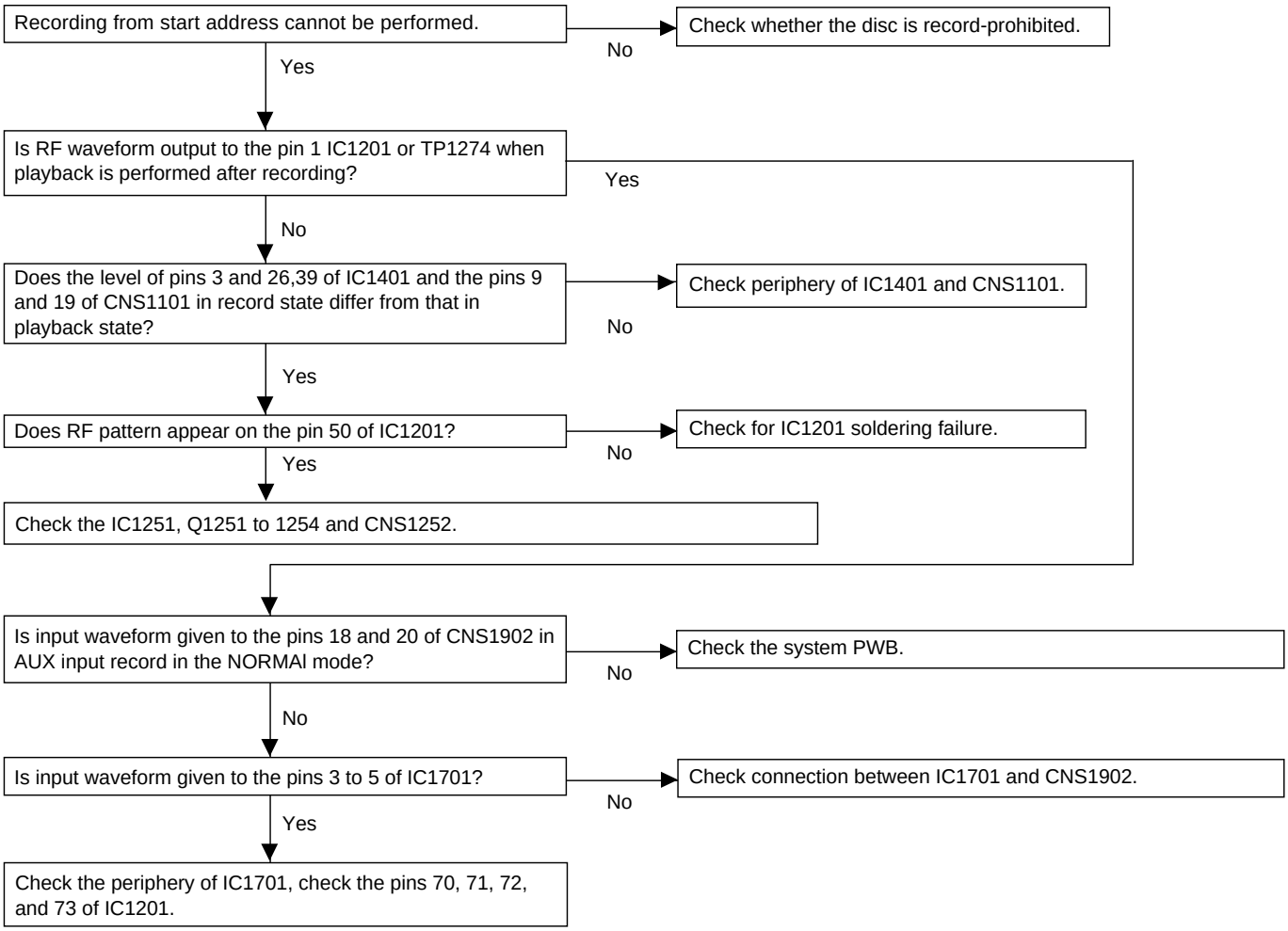
• Audio playback circuit

When sound is not output although the playback time display advances during playback in the normal mode.

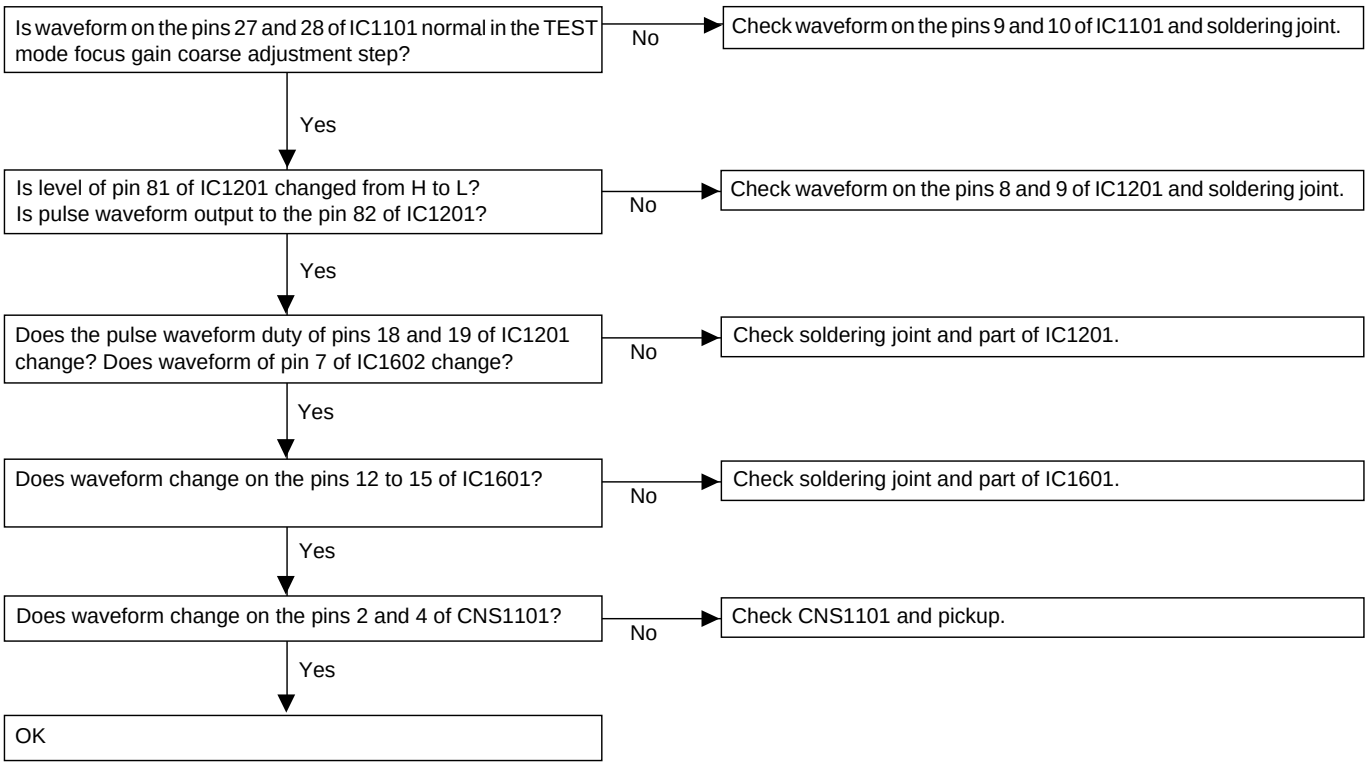

Is audio output waveform observed on the pins 24 to 26 of IC1701?
No
Check the pins 70, 71, 72 and 74 of IC1201, and the pins 12, 16, 17, and 19 of IC1701.
Yes
Is audio output waveform observed on the pins 22 and 24 of CNS1901?
No
Check connection between IC1701 and CNS1901.
Yes
Check the main PWB.

• Record and playback operation

Insert the low reflection disc, and after verifying the audio output in the normal mode playback set the record/playback TEST mode


Recording from start address cannot be performed.
No
Check whether the disc is record-prohibited.
Yes
Is RF waveform output to the pin 1 IC1201 or TP1274 when playback is performed after recording?
Yes
No
Does the level of pins 3 and 26,39 of IC1401 and the pins 9 and 19 of CNS1101 in record state differ from that in playback state?
Check periphery of IC1401 and CNS1101.
No
Yes
Does RF pattern appear on the pin 50 of IC1201?
Check for IC1201 soldering failure.
No
Yes
Check the IC1251, Q1251 to 1254 and CNS1252.
Is input waveform given to the pins 18 and 20 of CNS1902 in AUX input record in the NORMAl mode?
Check the system PWB.
No
No
Is input waveform given to the pins 3 to 5 of IC1701?
Check connection between IC1701 and CNS1902.
No
Yes
Check the periphery of IC1701, check the pins 70, 71, 72, and 73 of IC1201.

• Focus servo failure


Is waveform on the pins 27 and 28 of IC1101 normal in the TEST mode focus gain coarse adjustment step?
No
Check waveform on the pins 9 and 10 of IC1101 and soldering joint.
Yes
Is level of pin 81 of IC1201 changed from H to L?
Is pulse waveform output to the pin 82 of IC1201?
No
Check waveform on the pins 8 and 9 of IC1201 and soldering joint.
Yes
Does the pulse waveform duty of pins 18 and 19 of IC1201 change? Does waveform of pin 7 of IC1602 change?
No
Check soldering joint and part of IC1201.
Yes
Does waveform change on the pins 12 to 15 of IC1601?
No
Check soldering joint and part of IC1601.
Yes
Does waveform change on the pins 2 and 4 of CNS1101?
No
Check CNS1101 and pickup.
Yes
OK

• Disc motor fails to run

Does waveform appear on the pins 24 and 25 of IC1201 in the TEST mode focus gain coarse adjustment step?

No → Check soldering joint and parts of pins 24 and 25 of IC1201, and peripheral circuit.

Yes ↓

Does waveform appear on the pins 34 and 35 of IC1601, pins 1 and 2 of CNP1603?

No → Check soldering joint of PWB of completed IC1601 and CNP1601 disc motor.

Yes ↓

Replace the completed disc motor.

• Tracking servo failure

Does waveform appear on the pins 8 and 9 of IC1601, and pins 1 and 3 of CNS1101 in the TEST mode focus gain adjustment step?

No → Check the soldering joint of pins 20 and 21 of IC1201, IC1601, IC1601, CNS1101.

Yes ↓

Replace the optical pickup.

• Slide servo failure

Does the pickup move to external and internal periphery when the ►► or ◄◄ button is pressed in the TEST mode?

Yes → Check the waveform on the pins 22 and 23 of IC1201, check the peripheral parts and soldering joint.

No ↓

Is there any change on the pins 22 and 23 of IC1201 when the ►► or ◄◄ button is pressed?

No → Check the waveform on the pins 22 and 23 of IC1201, check the peripheral parts and soldering joint.

Yes ↓

Is there any change on the pins 28 and 29 of IC1601, and the pins 1 and 2 of CNP1602 when the►► or ◄◄ button is pressed?

No → Check the soldering joint of IC1601 and CNP1602.

Yes ↓

Does voltage on the positive and negative terminals of slide motor change when the►► or◄◄ button is pressed?

No → Check the soldering joint connected to the slide motor to see whether there is wire breakage.

Yes ↓

Replace the slide motor.

FUNCTION TABLE OF IC

IC901 RH-iX0240AWZZ: System Control Microcomputer (IX0240AW) (1/2)

Pin No.	Port Name	Terminal Name	Input/Output	Function
1	P77/AN7-P75/AN5	KEY1-KEY3	Input	Key input
4*	P74/AN4	—	Input	Not used
5	P73/AN3	INI	Input	Initial setting read-in
6	P72/AN2	JOG_AD	Input	Jog dial read-in
7	P71/AN1	MLAS	Output	CD_SRV interface latch signal
8	P70/AN0	MCK	Output	CD_DSP serial interface clock signal
9	PB3	MLAD	Output	CD_DSP interface latch signal
10	PB2/DA	MSD/DIG SEL	Output	Also used for CD_DSP serial interface command data/Q codes and digital signal selector switching signals
11	P57/SRDY3/AN15	JP1	Output	SRV_IC jump brake control signal for the CD
12	P56/SCLK3/AN14	PUIN	Input	CD pick-up position detection
13	P55/SOUT3/AN13	LOCKDRD	Input	Read-in the frame synchronous signal/disc rotary state signal from the CD DSP
14	P54/SIN3/AN12	DAC_MODE	Output	External DAC/ADC serial interface mode signal
15	P53/SRDY2/AN11	DAC_CLK/EX_SCK	Output	Also used for the external DAC/ADC serial interface clock signal and the serial/parallel IC serial interface clock signal
16	P52/SCLK2/AN10	DAC_DATA/EX_DATA	Output	Also used for the external DAC/ADC serial interface clock signal and the serial/parallel IC serial interface data signal
17	P51/SOUT2/AN9	EX_LCK	Output	Also used for the serial/parallel IC serial interface latch signal
18	P50/SIN2/AN8	DFS0/DFS1	Input	EMPHASIS information from the MD
19	P67/SRDY1/CS/ SCLK12	DSTRB	Input	Serial interface strobe signal for the MD
20	P66/SCLK1	DSCK	Output	Serial interface clock signal for the MD
21	P65/SOUT1	K-DATA	Output	Serial interface transmission data for the MD
22	P64/SIN1	MD-DATA	Input	Serial interface reception data for the MD
23	P63/CNTR1	MD-LO/EJ	Output	MD loading supply voltage switching signal
24	P62/CNTR0	D-OUT	Input	Track count signal/FSOK signal from the CD SRV_IC
25	P61/PWM	CH CMND	Output	Serial interface transmission data for the CD changer
26	P60	CH DATA	Input	Serial interface reception data for the CD changer
27	P47/T3OUT	CH RDY	Input	Serial interface ready signal for the CD changer
28	P46/T1OUT	CH CLK	Output	Serial interface clock signal for the CD changer
29	P45/INT1/2CR	P IN	Input	Power failure detection
30*	P44/INT4	PCNT	Output	Power control signal
31	P43/INT3	P-OUT	Output	Power failure detection signal to the MD
32	P42/INT2	RX IN	Input	Remote control optical reception signal
33	P41	P-MUTE	Output	Audio mute control signal
34	P40/INT0	SBQS	Input	CD sub-code Q read-out interrupt signal
35	RESET	RESET	Input	Read-in for the RESET signal
36	PB1/Xcin	Xcin	Input	Sub clock IN connection (32.7k)
37	PB0/Xcout	Xcout	Output	Sub clock OUT connection (32.7k)
38	Xin	Xin	Input	Main clock IN connection (8M)
39	Xout	Xout	Output	Main clock OUT connection (8M)
40	VSS	VSS	Input	GND
41	P27	SERCH	Output	CD-to-MD SEARCH monitor signal
42	P26	LOAD	Input	MD loading detection
43	P25	S-ID	Output	CD-to-MD start ID signal
44	P24	MD RESET	Output	RESET signal to the MD
45-54	P23/DIG19-P12/DIG10	UDIG0-UDIG9	Output	Digit for FL drive
55,56	P11/SEG41/DIG9, P10/SEG40/DIG8	UDIG10,UDIG11	Output	Digit for FL drive
57-60	P07/SEG39/DIG7-P04/SEG36/DIG4	UDIG12-UDIG15	Output	Digit for FL drive
61-64	P05/SEG35/DIG3-P00/SEG33/DIG0	S35-S32	Output	Segment for FL drive

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC901 RH-iX0240AWZZ: System Control Microcomputer (IX0240AW) (2/2)

Pin No.	Port Name	Terminal Name	Input/Output	Function
65-71	P37/SEG31-P31/SEG25	S31-S25	Output	Segment for FL drive
72	P30/SEG24	S0	Output	Segment for FL drive
73-80	P97/SEG23-P90/SEG16	S0-S8	Output	Segment for FL drive
81-88	P87/SEG15-P80/SEG8	S9-S16	Output	Segment for FL drive
89,90	PA7/SEG7, PA6/SEG6	S17,S18	Output	Segment for FL drive
91	VCC	VCC	Input	+5V
92-97	PA5/SEG5-PA0/SEG0	S19-S24	Output	Segment for FL drive
98	VEE	VEE	Input	-30V
99	AVSS	AVSS	Input	GND
100	VREF	VREF	Input	+5V

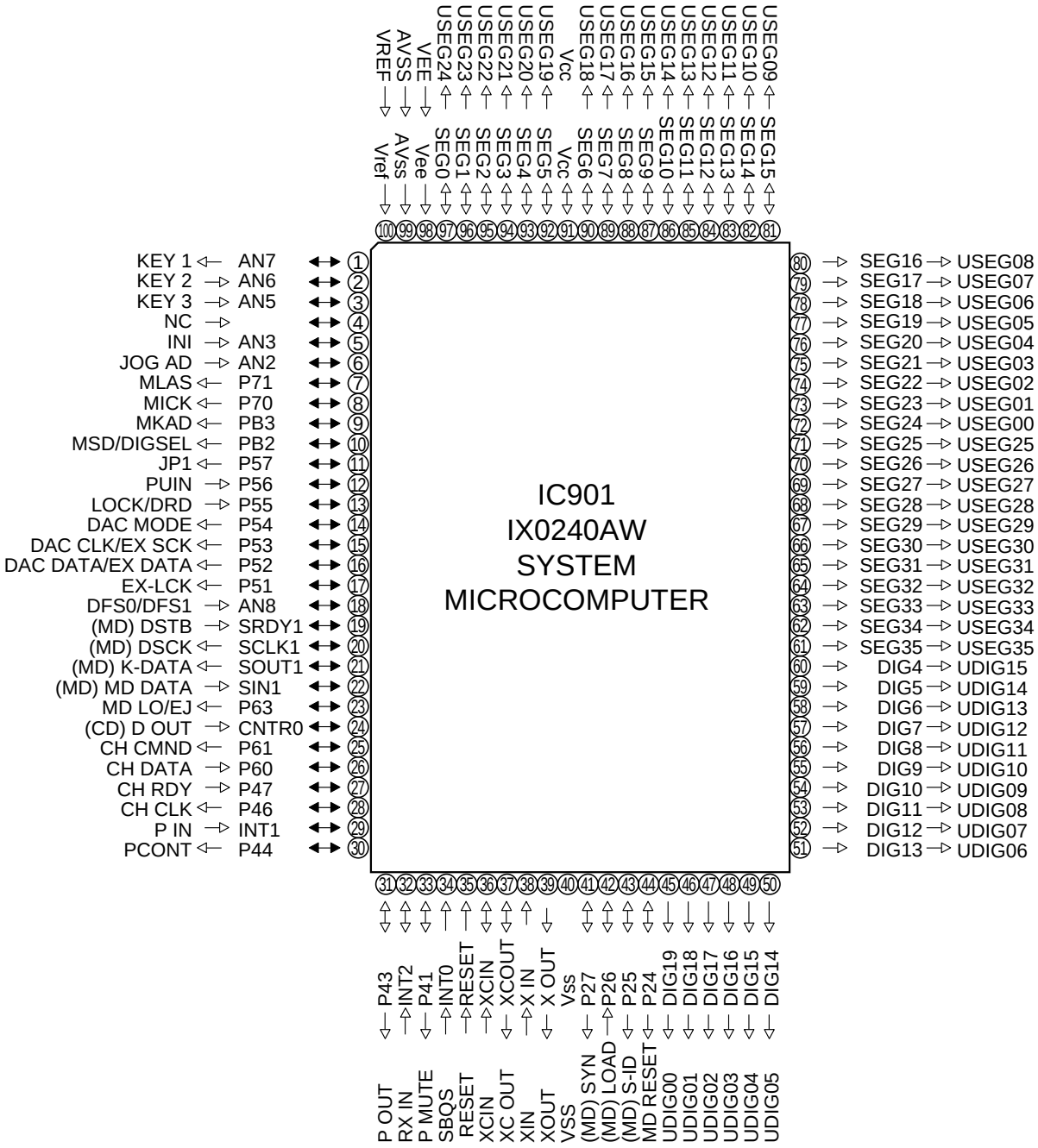


Figure 72 BLOCK DIAGRAM OF IC

IC1101 VHiiR3R55//-1:RF Signal Control (IR3R55)

Pin No.	Terminal Name	Function
1	RF1	RF signal input terminal 1 Input of RF signal output of pickup
2	RF2	RF signal input terminal 2 Input of RF signal output of pickup
3	RF3	RF signal input terminal 3 Input of RF signal output of pickup
4	RF4	RF signal input terminal 4 Input of RF signal output of pickup
5	REFI	Reference voltage amp. input terminal
6	REFO	Reference voltage amp. output terminal
7	RFADD	RF1 to 4 resistance addition output terminal
8	TCGI	Track cross detection signal amp. input terminal for groove
9	AIN	Servo signal amp. (focus servo system) inversion input terminal
10	BIN	Servo signal amp. (focus servo system) inversion input terminal
11	EIN	Servo signal amp. (tracking servo system) inversion input terminal
12	FIN	Servo signal amp. (tracking servo system) inversion input terminal
13	BIAS	Bias input terminal
14	AVCC	Analog section power terminal
15*	VSTBY	Logic signal output terminal (STBY signal inversion signal is output.)
16*	XDISC	Logic signal output terminal (DISC signal inversion signal is output.)
17*	XSGAIN	Logic signal output terminal (SGAIN signal inversion signal is output.)
18	AGND	Analog section GND terminal
19	DGND	Digital section GND terminal
20	DTEMP	Chip temperature detection terminal
21	LATCH	Latch signal input terminal
22	CLOCK	Clock signal input terminal
23	DATA	Serial data input terminal
24	DVCC	Digital section power terminal
25	FOUT	Servo signal amp. (tracking servo system) output terminal
26	EOUT	Servo signal amp. (tracking servo system) output terminal
27	BOUT	Servo signal amp. (focus servo system) output terminal
28	AOUT	Servo signal amp. (focus servo system) output terminal
29	TCGO	Track cross detection signal amp. output terminal for groove
30	WBO	Comparator output terminal for ADIP signal binary-coding
31	22KI	Comparator input terminal for ADIP signal binary-coding
32	22KO	ADIP signal HPF amp. output terminal
33	ADLPFO	ADIP signal LPF amp. output terminal
34*	NC	NC
35	ADIPO	ADIP signal preamp. output terminal
36	ADIPI	ADIP signal AGC amp. output terminal
37	ADAGC	ADIP signal AGC smoothing capacitor connection terminal
38	ADAGI	ADIP signal AGC amp. input terminal
39	RF2-1	RF1 and RF2 difference signal
40	EFMO	RF signal preamp. output terminal
41*	WFMI	RF signal AGC amp. output terminal
42	AVCC	Analog section power terminal
43	AGND	Analog section GND terminal
44	EFMAGC	EFM signal AGC smoothing capacitor connection terminal
45	EFMAGI	EFM signal AGC amp. output terminal
46*	ATTR	Pins 47 and 48 output signal attenuation terminal
47	GOUT	Output of signal of RF1+RF2-RF3-RF4 for groove
48	POUT	Rf1 to 4 resistance addition output for pit

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC1201 VHiLR376481-1:ENDEC/ATRAC (LR376481) (1/2)

Pin No.	Terminal Name	Input/Output	Function
1*	EFMMON	Output	EFM monitor output
2	AVCC	—	Analog power
3	EFMI	Input	EFM signal input from RF amp.
4	AGND	—	Analog GND
5	AIN	Input	Focus error signal A
6	EIN	Input	Tracking error signal E
7	TCG	Input	Track cross signal
8	BIN	Input	Focus error signal B
9	FIN	Input	Tracking error signal F
10	VBAT	Input	Power voltage detection signal for constant voltage servo
11	WBI	Input	ADIP wobble signal
12	VDD1	—	Digital power
13	DGND	—	Digital GND
14,15	TEST0,TEST1	Input	Input for test. Connection to GND in case of normal use
16	TEST2	Input	Input for test. Endecode/servo mode and ATRAC mode selection
17	X176KO	Output	Clock output. f=176.4 kHz (4fs)
18	FODRF	Output	Focus servo forward output. PWM
19	FODRR	Output	Focus servo reverse output. PWM
20	TRDRF	Output	Tracking servo forward output. PWM
21	LATCH	Output	Tracking servo reverse output. PWM
22	CLOCK	Output	Slide servo forward output. PWM
23	DATA	Output	Slide servo reverse output. PWM
24	DVCC	Output	Spindle servo forward output or spindle servo output. PWM
25	FOUT	Output	Spindle servo reverse output or spindle rotation (forward/reverse)selection
26	EOUT	Output	Address output to external D-RAM. ADR3
27	BOUT	Output	Address output to external D-RAM. ADR2
28	AOUT	Output	Address output to external D-RAM. ADR1
29	TCGO	Output	Address output to external D-RAM. ADR0 (LSB)
30*	WBO	Output	Address output to external D-RAM. ADR10 (MSB)
31	22KI	—	Power supply for DRAM interface
32	22KO	Output	Address output to external D-RAM. ADR4
33	ADLPFO	Output	Address output to external D-RAM. ADR5
34	NC	Output	Address output to external D-RAM. ADR6
35	ADIPO	Output	Address output to external D-RAM. ADR7
36	ADIPI	Output	Address output to external D-RAM. ADR8
37	ADAGC	Output	Data output enable signal output to external D-RAM
38	ADAGI	—	Digital GND
39	RF2-1	Output	Column address strobe signal output to external D-RAM
40	EFMO	In/Output	Data input/output from and to external D-RAM. D2
41	WFMI	In/Output	Data input/output from and to external D-RAM. D3 (MSB)
42	AVCC	Output	Data input/output from and to external D-RAM. ADR9
43	AGND	Output	Low address strobe signal output to external D-RAM
44	EFMAGC	Output	Data write enable signal output to external D-RAM
45	EFMAGI	In/Output	Data input/output from and to external D-RAM. D1
46	ATTR	In/Output	Data input/output from and to external D-RAM. D0 (LSB)
47*	GOUT	Output	Track cross signal
48*	POUT	Output	ADIP CRC error flag monitor output
49*	PLCK	Output	EFM PLL clock output in playback mode
50	EFM0	Output	EFM signal output in record mode. C1F (C1 error flag) monitor output in playback mode
51*	X700KO	Output	Clock output. f = 705.6 kHz. Clock output is not performed when RSTX = 0.
52*	EXPORT0	Output	Microcomputer extension output port 0
53*	EXPORT1	Output	Microcomputer extension output port 1

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC1201 VHiLR376481-1:ENDEC/ATRAC (LR376481) (2/2)

Pin No.	Terminal Name	Input/Output	Function
54	TESO1	Output	PLLLR. Microcomputer extension output port 2 in case of selection
55	TESO3	In/Output	PLLOSC. Microcomputer extension output port 3 in case of selection
56	TEST4	In/Output	EXTCLK. Microcomputer extension output port 4 in case of selection
57	CDDATA	In/Output	High speed dubbing CD data input. Microcomputer extension output port 5 in case of selection
58	CDLRCK	In/Output	High speed dubbing CD LR data input. Microcomputer extension output port 6 in case of selection
59	CDBCLK	In/Output	High speed dubbing CD bit data input. Microcomputer extension output port 7 in case of selection
60	VXI	Input	Vari-pitch PLL clock input
61	VPO	Output	Vari-pitch PLL phase error output
62	VDD1	—	Digital power
63	DGND	—	Digital GND
64	XI	Input	Oscillation circuit input. 33.8688 MHz
65	XO	Output	Oscillation circuit input. 33.8688 MHz
66	DIN	Input	Digital input signal
67	DOUT	Output	Digital output signal
68	VDD3	—	Power for internal PLL
69	DGND	—	Digital GND
70	LRCK	Output	Music data Lch/Rch selection output
71	BLCK	Output	Music data shift clock
72	DFCK	Output	AD/DA converter digital filter clock. 256 Fs
73	ADDATA	Input	Audio data input
74	DADATA	Output	Audio data output
75*	FEMON	Output	Focus error signal monitor output
76*	TOTMON	Output	Total signal monitor output
77*	TEMON	Output	Tracking error signal monitor output
78	SBCK	Input	DIN subcode read clock. EIAJ CP-309 Format
79*	SBO	Output	DIN subcode serial data. EIAJ CP-309 Format
80*	SBSY	Output	DIN subcode block sync signal. EIAJ CP-309 Format
81	SFSY	Output	DIN subcode frame sync signal. EIAJ CP-309 Format
82	FOK	Output	Focus OK detection signal. "0" : Focus OK
83	SENSE	Output	Servo status detection signal. "1": Auto-move, auto-jump, auto-focus retraction
84	COUT	Output	Track cross signal output
85	MCCK	Output	Microcomputer clock output. Clock output is performed also when RSTX = 0.
86	DINTX	Output	System controller interface interruption request output terminal
87	VDD1	—	Digital power
88	DGND	—	Digital GND
89	RSTX	Input	Chip reset input. "L": Reset
90	SYD0	In/Output	System controller interface data bus terminal (LSB)
91~96	SYD1~SYD6	In/Output	System controller interface data bus terminal
97	SYD7	In/Output	System controller interface data bus terminal (MSB)
98	SYWRX	Input	System controller interface register writing pulse input
99	SYRDX	Input	System controller register read pulse input
100	SYRS	Input	System controller interface register selection input

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC1401 RX-iX0232AWZZ:MD System Microcomputer (IX0232AW) (1/2)

Pin No.	Terminal Name	Input/Output	Function
1*	P96/ANEX1	Output	Not used
2*	P95/ANEX0	Output	Not used
3	P94/DA1	Output	LDVAR (laser power adjustment output)
4*	P93/DA0	Output	ADJS (for automatic adjustment step check)
5*	P92/TB2IN	Output	Not used
6	P91/TB1IN	Input	LD SW CK input (interruption input only in single state)
7	P90/TB0IN	Input	ERR input (monitor PLL UNLOCK)
8	BYTE	Input	GND
9	CNVss	Input	GND
10*	P87/XCIN	Output	ST-ID Output
11*	P86/XOUT	Output	MD search output
12	RESET	Input	RESETInput
13*	XOUT	—	Extal clock output
14	Vss	—	GND
15	XIN	Input	EXTAL (8.4672 MHz)
16	Vcc	—	+ 3.15V
17	P85/NMI	Input	Connect +B
18	P84/INT2	Input	DINT (interruption input from MD LSI)
19	P83/INT1	Input	DSENSE (servo sense input from MD LSI)
20	P82/INT0	Input	ST-ID Input (MD-ON)
21	P81/TA4IN	Input	CD search input (syncro REC suspension input from MD LSI)
22	P80/TA4OUT	Output	MD RSW Output
23*	P77/TA3IN	Input	FSW1 (SW power frequency selection)
24	P76/TA3OUT	Output	Vari-pitch correspondence given (H)/not given (L)
25	P75/TA2IN	Input	P-DOWN (power failure detection)
26	P74/TA2OUT	Output	HDON (magnetic head current ON/OFF output)
27	P73/TA1IN	Output	LD+ (loading motor + control output)
28	P72/TA1OUT	Output	LD- (loading motor + control output)
29	P71/TA0IN	Input	CIN (track count signal input)
30	P70/TA0OUT	Input	INN SW (inner SW detection input)
31	P67/TXD1	Output	R-DATA
32	P66/RXD1	Output	R-LATCH
33	P65/CLK1	Output	R-CLK
34	P64/CTS1/RTS1/ CTS0/CLKS1	Output	DSTB (system controller communication enable and communication beingexecuted)
35	P63/TXD0	Output	MD DATA (MD Data Output)
36	P62/RXD0	Input	K DATA (system controller data input)
37	P61/CLK0	Input	DSCK (system controller communication clock input)
38	P60/CTS0/RTS0	Input	4M/16M DRAM selection input
39	P57/RDY/CLKOUT	Output	R/P output (REC/PLAY selection)
40	P56/ALE	Input	FOK (focus servo status monitor input)
41*	WFMI	Input/Output	Not used
42	AVCC	Output	S2 Ouput
43	AGND	Output	S1 Output
44	EFMAGC	Output	SYRS (MD-LSI register selection signal output)
45	EFMAGI	Output	SYRD (MD-LSI read signal output)
46	ATTR	Output	SYWR (MD-LSI right signal output)
47	GOUT	In/Output	SYS D7 (data bus 7)
48	POUT	In/Output	SYS D6 (data bus 6)
49	PLCK	In/Output	SYS D5 (data bus 5)
50	EFM0	In/Output	SYS D4 (data bus 4)
51	X700KO	In/Output	SYS D3 (data bus 3)

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC1401 RX-iX0232AWZZ:MD System Microcomputer (IX0232AW) (2/2)

Pin No.	Terminal Name	Input/Output	Function
52	P42/A18	In/Output	SYS D2 (data bus 2)
53	P41/A17	In/Output	SYS D1 (data bus 1)
54	P40/A16	In/Output	SYS D0 (data bus 0)
55*	P37/A15	Output	Not used
56*	P36/A14	Output	Not used
57*	P35/A13	Output	Not used
58	P34/A12	Output	EEPRO (EEPROM protection cancel)
59	P33/A11	Output	EPCS (EEPROM chip selector output)
60	P32/A10	In/Output	EEPD (EEPROM sirial data output)
61	P31A9	Output	EEPK (EEPROM sirial colck output)
62	Vcc	Input	+ 3.15V
63*	P30/A8	Output	Not used
64	Vss	—	GND
65*	P27/A7	Output	L3 DATA (soft serial communication, 2 modes provided, LSB fast)
66*	P26/A6	Output	L3 MODE (soft serial communication, 2 modes provided, LSB fast)
67*	P25/A5	Output	L3 CLK (soft serial communication, 2 modes provided, LSB fast)
68*	P24/A4	Output	Not used
69*	P23/A3	Output	Not used
70	P22/A2	Output	PCNT0 output
71*	P21/A1	Output	Not used
72	P20/A0	Output	LDON output (H: ON)
73	P17/D15	Output	ANLPTR output
74*	P16/D14	Output	ADPON output (for CK)
75*	P15/D13	Output	DAPON output (for CK)
76	P14/D12	Output	DFS0 output
77	P13/D11	Output	DFS1 output
78*	P12/D10	Output	DIG EX output (for CK)
79*	P11/D9	Output	DIG CD output (for CK)
80	P10/D8	Output	XRST (system reset output)
81*	P07/D7	Output	AD MUTE output (for CK)
82*	P06/D6	Output	EMPHA output (for CK)
83*	P05/D5	Output	DA MUTE output (for CK)
84	P04/D4	Output	MUTE output
85*	P03/D3	Output	DOUTM output (for CK)
86	P02/D2	Input	TEST2 (special mode selection 2)
87	P01/D1	Input	TEST1 (special mode selection 1)
88	P00/D0	Input	TEST0 (special mode selection 0)
89	P107/AN7/KI3	Input	AVCK3 (special mode monitor input)
90	P106/AN6/KI2	Input	AVCK2 (AD/DA section 3.1V monitor input)
91	P105/AN5/KI1	Input	AVCK1 (DOUT section 5V monitor input)
92	P104/AN4/KI0	Input	DTEMP (temperature detection input)
93	P103/AN3	Input	MINF (disc type/REC input)
94	P102/AN2	Input	TEST K1 (test key input 1)
95	P101/AN1	Input	TEST K2 (test key input 2)
96	AVss	—	GND
97	P100/AN0	Input	HINF (mechanism position/HEAD position)
98	VREF	—	+ 3.15V
99	AVcc	—	+ 3.15V
100	P97/ADTRG	Input	Connect +B

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC1101 VHiiR3R55//-1:RF Signal Control (IR3R55)

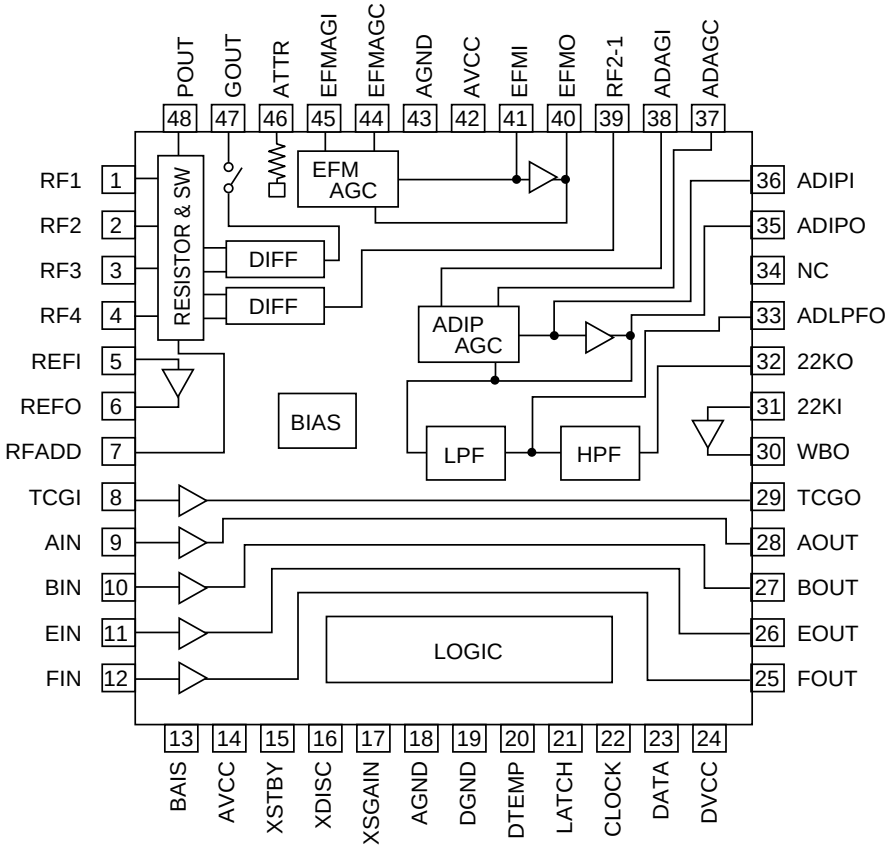


Figure 78-1 BLOCK DIAGRAM OF IC

IC1201 VHiLR376481-1:ENDEC/ATRAC (LR376481)

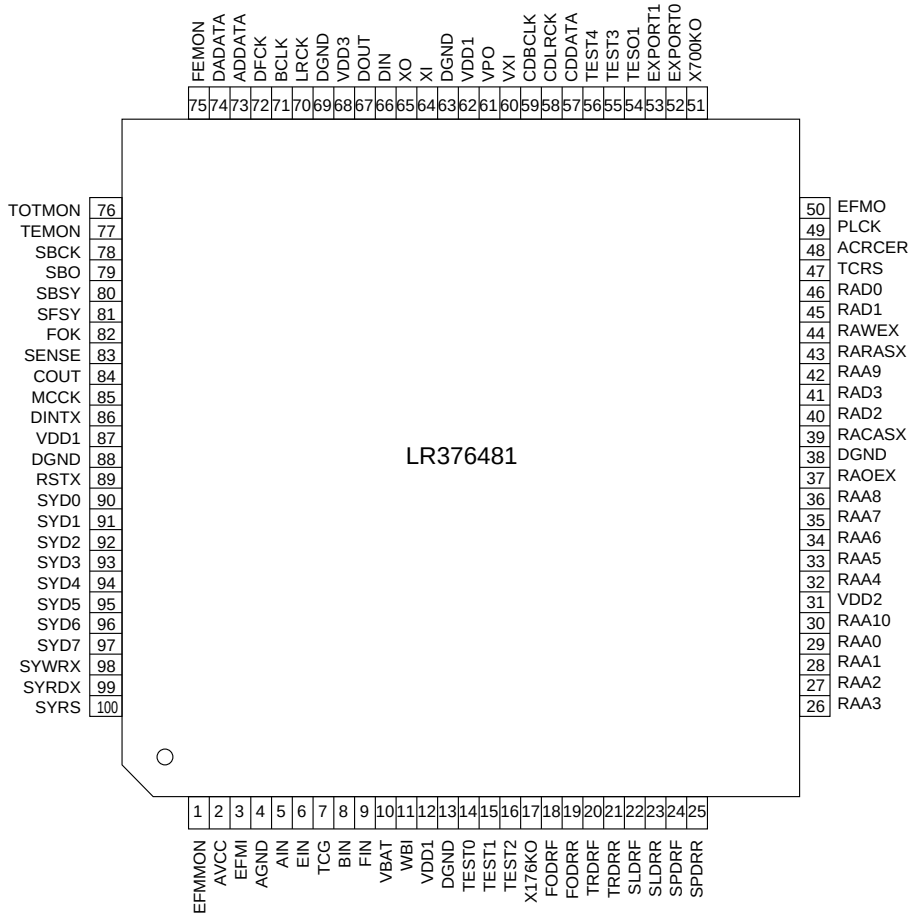


Figure 78-2 BLOCK DIAGRAM OF IC

SHARP PARTS GUIDE

MODEL MD-R3

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. No.
3. PART NO.
4. DESCRIPTION

★ MARK: SPARE PARTS-DELIVERY SECTION

For U.S.A. only

Contact your nearest SHARP Parts Distributor to order.

For location of SHARP Parts Distributor,
Please call Toll-Free;
1-800-BE-SHARP

Explanation of capacitors/resistors parts codes

Capacitors

VCC ..... Ceramic type
VCK ..... Ceramic type
VCT ..... Semiconductor type
VC • • MF ..... Cylindrical type (without lead wire)
VC • • MN ..... Cylindrical type (without lead wire)
VC • • TV ..... Square type (without lead wire)
VC • • TQ ..... Square type (without lead wire)
VC • • CY ..... Square type (without lead wire)
VC • • CZ ..... Square type (without lead wire)
VC • • • • • • • • • J .. The 13th character represents capacity difference.
("J" ±5%, "K" ±10%, "M" ±20%, "N" ±30%,
"C" ±0.25 pF, "D" ±0.5 pF, "Z" +80-20%.)

If there are no indications for the electrolytic capacitors, error is ±20%.

Resistors

VRD ..... Carbon-film type
VRS ..... Carbon-film type
VRN ..... Metal-film type
VR • • MF ..... Cylindrical type (without lead wire)
VR • • MN ..... Cylindrical type (without lead wire)
VR • • TV ..... Square type (without lead wire)
VR • • TQ ..... Square type (without lead wire)
VR • • CY ..... Square type (without lead wire)
VR • • CZ ..... Square type (without lead wire)
VR • • • • • • • • • J .. The 13th character represents error.
("J" ±5%, "F" ±1%, "D" ±0.5%.)

If there are no indications for other parts, the resistors are ±5% carbon-film type.

NOTE:
Parts marked with "⚠" are important for maintaining the safety of the set.
Be sure to replace parts with specified ones for maintaining the safety and performance of the set.

NO.	PART CODE	★	PRICE RANK	DESCRIPTION
INTEGRATED CIRCUITS				
IC101	VHINJM4560D-1	J	AH	Ope Amp.,NJM4560D
IC201	VHIUDA1340/-1	J	BA	AD/DA Converter,UDA1340
IC301	VHI74HCU04/-1	J	AF	Inverter,74HCU04
IC302	VHI74HC10AP-1	J	AF	NAND Gate,74HC10AP
IC351	VHINJM4560D-1	J	AH	Mic Amp.,NJM4560D
IC380	VHIMC14066B-1	J	AD	Analogue Switch,MC14066B
IC501	VHIS81233YX-1	J	AG	Regulator,S81233YX
IC601	VHINJM4580D-1	J	AG	Line Amp.,NJM4580D
IC651	VHINJM4560D-1	J	AH	Ope Amp.,NJM4560D
IC700	VHIBA5914FP-1	J	AN	Focus/Tracking/Spin/Slide Driver,BA5914FP
IC750	VHIM62472FP-1	J	AV	Servo Control,M62472FP
IC800	VHIM65821FP-1	J	BA	Servo/Signal Control,M65821FP
IC901	RH-IX0240AWZZ	J	BE	System Microcomputer, IX0240AW
IC902	VHIPST9127/-1	J	AG	Reset,PST9127
IC990	VHIBU2092F/-1	J	AM	Input/Output Expander, BU2092F
IC1101	VHIIR3R55//-1	J	AQ	RF Signal,Processor,IR3R55
IC1201	VHILR376481-1	J	BD	ENDEC,LR376481
IC1202	RH-IX2474AFZZ	J	BF	4Mbit D-RAM,IX2474AF
IC1251	VHI74ACT02F-1	J	AF	Head Driver,74ACT02F
IC1401	RH-IX0232AWZZ	J	BA	MD System Microcomputer, IX0232AW
IC1402	VHIS29294A/-1	J	AH	EEPROM,S29294A
IC1601	VHIM56758FP-1	J	AM	5-CH Motor Driver,M56758FP
IC1801	VHIXC62EP32-1	J	AE	Regulator,XC62EP32
IC1906	VHITC7ST08F-1	J	AE	Inverter,TC7ST08F
IC1907	VHITC9246F/-1	J	AM	Inverter,TC9246F
IC1916	VHI74VHC08FT1	J	AF	AND Gate,74VHC08FT
IC1990	VHI74AC04FS-1	J	AF	Inverter,74AC04FS
ICB101	RH-IX0177AWZZ	J	AR	Changer Microcomputer, IX0177AW
ICB102,103	VHITA7291S/-1	J	AH	Loading Motor Driver, TA7291S
ICB104	VHIPST9127/-1	J	AG	Reset,PST9127
TRANSISTORS				
Q380	VSKRC104S//-1	J	AC	Digital,NPN,KRC104 S
Q451,452	VS2SC2878B/-1	J	AC	Silicon,NPN,2SC2878 B
Q501	VSKTA1266GR-1	J	AB	Silicon,PNP,KTA1266 GR
Q502	VS2SB562-C/-1	J	AD	Silicon,PNP,2SB562 C
Q503	VS2SD468-C/-1	J	AD	Silicon,NPN,2SD468 C
Q504	VS2SD2012Y/-1	J	AF	Silicon,NPN,2SD2012 Y
Q505	VSKRC102S//-1	J	AB	Digital,NPN,KRC102 S
Q506~508	VS2SD2394F/-1	J	AE	Silicon,NPN,2SD2394 F
Q509	VS2SD468-C/-1	J	AD	Silicon,NPN,2SD468 C
Q510	VSKRA102S//-1	J	AB	Digital,PNP,KRA102 S
Q511	VSKRC102S//-1	J	AB	Digital,NPN,KRC102 S
Q601,602	VS2SC2878B/-1	J	AC	Silicon,NPN,2SC2878 B
Q653	VSKRC102S//-1	J	AB	Digital,NPN,KRC102 S
Q701	VSKRA103S//-1	J	AB	Silicon,PNP,KRA103 S
Q751	VS2SA1015GR-1	J	AB	Silicon,PNP,2SA1015 GR
Q930	VSKTC3875GR-1	J	AB	Silicon,NPN,KTC3875 GR
Q935	VSKTC3875GR-1	J	AB	Silicon,NPN,KTC3875 GR
Q1251,1252	VS2SK2909//-1	J	AE	FET,2SK2909
Q1253,1254	VS2SK1473//-1	J	AF	FET,2SK1473
Q1401	VSRN2404///-1	J	AC	Digital,PNP,RN2404
Q1402	VSRNC1404//-1	J	AB	Digital,NPN,RNC1404
Q1403	VSRN2404///-1	J	AC	Digital,PNP,RN2404
Q1404	VSRNC1404//-1	J	AB	Digital,NPN,RNC1404
Q1451	VSRNC1407//-1	J	AC	Digital,NPN,RNC1407
Q1601	VS2SA1314C/-1	J	AD	Silicon,PNP,2SA1314 C
Q1801	VS2SA1314C/-1	J	AD	Silicon,PNP,2SA1314 C
Q1802,1803	VSRN1406///-1	J	AB	Digital,NPN,RN1406
Q1807	VS2SA1314C/-1	J	AD	Silicon,PNP,2SA1314 C
Q1820	VS2SA1162G/-1	J	AB	Silicon,PNP,2SA1162 G
Q1821,1822	VSRNC1407//-1	J	AC	Digital,NPN,RNC1407
QB102	VSKRC107M//-1	J	AC	Digital,NPN,KRC107 M
DIODES				
D301	VHEMTZJ5R1B-1	J	AC	Zener,5.1V,MTZJ5.1B
D302	VHD1SS133//-1	J	AA	Silicon,1SS133
D501	VHEMTZJ6R8B-1	J	AC	Zener,6.8V,MTZJ6.8B
D502	VHEMTZJ330B-1	J	AB	Zener,33V,MTZJ33B
D503,504	VHEMTZJ9R1B-1	J	AB	Zener,9.1V,MTZJ9.1B
D505	VHEMTZJ6R8A-1	J	AA	Zener,6.8V,MTZJ6.8A
D506	VHEMTZJ7R5B-1	J	AA	Zener,7.5V,MTZJ7.5B
D507	VHERD5R6JS2-1	J	AB	Zener,5.6V,RD5.6JS2

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
D508	VHEMTZJ270D-1	J	AA	Zener,27V,MTZJ27D
D509,510	VHD1SS133//-1	J	AA	Silicon,1SS133
D511	VHERD9R1JS1-1	J	AA	Zener,9.1V,RD9.1JS1
D512	VHEMTZJ8R2C-1	J	AB	Zener,8.2V,MTZJ8.2C
D513	VHEMTZJ5R6C-1	J	AB	Zener,5.6V,MTZJ5.6C
D516	VHD1SS133//-1	J	AA	Silicon,1SS133
D517	VHDRL104A//-1	J	AB	Silicon,RL104A
⚠D551~554	VHDRL104A//-1	J	AB	Silicon,RL104A
D555~559	VHDRL104A//-1	J	AB	Silicon,RL104A
D651	VHEMTZJ9R1B-1	J	AB	Zener,9.1V,MTZJ9.1B
D803	VHDDA118///-1	J	AB	Silicon,DA118
D950~952	VHPSLR325MG-1	J	AE	LED,Green,SLR325MG
D1251,1252	VHDSB0209CP-1	J	AC	Silicon,SB0209CP
D1990	VHD1SS372//-1	J	AD	Silicon,1SS372
RB144	VHEMTZJ4R3B-1	J	AC	Zener,4.3V,MTZJ4.3B
RB152	VHERD5R1JS1-1	J	AA	Zener,5.1V,RD5.1JS1
TRANSFORMER				
⚠T551	RTRNP0179AWZZ	J	BB	Power
COILS				
JA543	VP-DH100K0000	J	AB	10 µH,Choke
L101	VP-DHR22K0000	J	AB	0.22 µH
L201,202	VP-DH100K0000	J	AB	10 µH,Choke
L301,302	VP-DH100K0000	J	AB	10 µH,Choke
L451	VP-DHR22K0000	J	AB	0.22 µH
L901	VP-MK220K0000	J	AB	22 µH,Choke
L1101	VPBNN100K0000	J	AC	10 µH
L1102	VPBNNR47K0000	J	AC	0.47 µH
L1201	VPBNNR47K0000	J	AC	0.47 µH
L1203	VPBNN4R7K0000	J	AC	4.7 µH
L1251	VP-NM470K0000	J	AC	47 µH
L1601	RCILZ0016AWZZ	J	AD	1 µH
L1950	RCILZ0016AWZZ	J	AD	1 µH
LB102	VP-MK100K0000	J	AB	10 µH,Choke
LB103	VP-DH101K0000	J	AB	100 µH,Choke
LB105	VP-MK100K0000	J	AB	10 µH,Choke
VARIABLE RESISTORS				
VR101	RVR-B0016AWZZ	J	AH	5 kohms (B),Volume [Rec.Volume]
VR651	RVR-C0002AWZZ	J	AH	1 kohm (C),Volume [Headphones Volume]
VR751	92LVRS473NBMT	J	AC	47 kohms (B),Semi-VR [Tracking Error Balance]
VR752	92LVRS103NBMT	J	AC	10 kohm (B),Semi-VR [Tracking Gain]
VR753	92LVRS473NBMT	J	AC	47 kohms (B),Semi-VR [Focus Offset]
VR754	92LVRS473NBMT	J	AC	47 kohms (B),Semi-VR [Tracking Offset]
VIBRATORS				
X801	RCRSP0004AWZZ	J	AF	Crystal,8.46 MHz
X901	RCRM-0012AWZZ	J	AF	Ceramic,4.19 MHz
X902	RCRSP0051AFZZ	J	AK	Crystal,32.768 kHz
XB101	RCRM-0110AFZZ	J	AC	Ceramic,3 MHz
XL1201	RCRSC0001AWZZ	J	AL	Crystal,33.8688 MHz
CAPACITORS				
C101	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C103,104	VCCCTV1HH101J	J	AA	100 pF (CH),50V
C105	VCKYPU1HB221K	J	AA	220 pF,50V
C106	VCKYTV1HB221K	J	AA	220 pF,50V
C107,108	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C109,110	VCKYTV1HB221K	J	AA	220 pF,50V
C113,114	VCCCTV1HH470J	J	AA	47 pF (CH),50V
C115,116	RC-GZA476AF1A	J	AB	47 µF,10V,Electrolytic
C117,118	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C201	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C202,203	RC-GZA476AF1A	J	AB	47 µF,10V,Electrolytic
C204	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C205	RC-GZA475AF1E	J	AB	4.7 µF,25V,Electrolytic
C207	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C208	RC-EZ0004AWZZ	J	AD	100 µF,10V,Electrolytic
C209	RC-GZA475AF1E	J	AB	4.7 µF,25V,Electrolytic
C212	RC-EZ0004AWZZ	J	AD	100 µF,10V,Electrolytic

NO.	PART CODE	★	PRICE RANK	DESCRIPTION
C224	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C225,226	VCKYPU1HB101K	J	AA	100 pF,50V
C227	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C228	VCTYBT1EF223Z	J	AA	0.022 µF,25V
C301	VCTYPU1EX103K	J	AA	0.01 µF,25V
C302	VCKYTQ1EF104Z	J	AA	0.1 µF,25V
C303~305	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C307	VCKYTV1HB223K	J	AA	0.022 µF,50V
C308	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C310	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C312	VCTYBT1EF223Z	J	AA	0.022 µF,25V
C351,352	VCCCTV1HH101J	J	AA	100 pF (CH),50V
C353,354	VCKYTV1CB104K	J	AA	0.1 µF,16V
C355,356	VCKYTV1HB221K	J	AA	220 pF,50V
C357,358	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C359,360	VCKYTV1HB681K	J	AA	680 pF,50V
C361,362	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C370	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C380	VCKYTQ1EF104Z	J	AA	0.1 µF,25V
C385	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C402	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C403	VCTYBT1EF223Z	J	AA	0.022 µF,25V
C451,452	RC-EZ0024AWZZ	J	AD	47 µF,10V,Electrolytic
C453,454	VCKYTV1HB471K	J	AA	470 pF,50V
C455,456	VCKYTV1HB821K	J	AA	820 pF,50V
C457,458	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C459,460	VCKYTV1HB471K	J	AA	470 pF,50V
C501	RC-GZV108AF1E	J	AD	1000 µF,25V,Electrolytic
C502,503	RC-GZ0059AFZZ	J	AF	4700 µF,25V,Electrolytic
C504	RC-GZV227AF1H	J	AC	220 µF,50V,Electrolytic
C505	RC-GZA106AF1H	J	AB	10 µF,50V,Electrolytic
C506	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C507	RC-GZA336AF1H	J	AB	33 µF,50V,Electrolytic
C508	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C509	RC-GZA476AF1E	J	AB	47 µF,25V,Electrolytic
C510	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C511	RC-GZA476AF1E	J	AB	47 µF,25V,Electrolytic
C512	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C513	RC-GZA476AF1E	J	AB	47 µF,25V,Electrolytic
C514~516	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C517,518	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C519	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C520	VCKYTV1HB102K	J	AA	0.001 µF,50V
C521	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C522	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C523	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C524	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C525	VCKYTV1HB103K	J	AA	0.01 µF,50V
C526	RC-GZ0059AFZZ	J	AF	4700 µF,25V,Electrolytic
C527	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C528,529	RC-GZA108AF0J	J	AC	1000 µF,6.3V,Electrolytic
C535	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C542	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C543	VCTYPA1EF104Z	J	AA	0.1 µF,25V
C544,545	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C601,602	RC-EZ0024AWZZ	J	AD	47 µF,10V,Electrolytic
C603,604	VCKYTV1HB221K	J	AA	220 pF,50V
C607,608	VCKYTV1HB221K	J	AA	220 pF,50V
C611,612	VCCCTV1HH470J	J	AA	47 pF (CH),50V
C613,614	RC-GZA476AF1A	J	AB	47 µF,10V,Electrolytic
C615,616	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C651,652	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C653,654	VCKYPU1HB151K	J	AA	150 pF,50V
C655,656	VCCCTV1HH270J	J	AA	27 pF (CH),50V
C657,658	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C659,660	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C659A	VCKYTV1HF223Z	J	AA	0.022 µF,50V
C661,662	VCKYTV1HB102K	J	AA	0.001 µF,50V
C663	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C667	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C701	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C702	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C703,704	VCKYTV1HB223K	J	AA	0.022 µF,50V
C750	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C751	RC-GZA475AF1E	J	AB	4.7 µF,25V,Electrolytic
C752,753	VCCCTV1HH121J	J	AA	120 pF (CH),50V
C755	VCKYTV1HB332K	J	AA	0.0033 µF,50V
C756	VCKYTV1HB822K	J	AA	0.0082 µF,50V
C757	VCKYTV1CE154M	J	AA	0.15 µF,16V
C758	VCKYTV1CE334M	J	AA	0.33 µF,16V
C759	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C760	VCKYTV1CB104K	J	AA	0.1 µF,16V

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
C761	VCKYTV1HB223K	J	AA	0.022 µF,50V
C762	VCKYTV1CB104K	J	AA	0.1 µF,16V
C763	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C764	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C765	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C766	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C767	RC-GZA225AF1H	J	AB	2.2 µF,50V,Electrolytic
C768	RC-GZA226AF1C	J	AB	22 µF,16V,Electrolytic
C769	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C770	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C771	VCKYTV1CB683K	J	AB	0.068 µF,16V
C772	VCKYTV1HB333K	J	AA	0.033 µF,50V
C773	VCKYTV1HB102K	J	AA	0.001 µF,50V
C774	VCCCTV1HH9R0D	J	AA	9 pF (CH),50V
C780	VCKYTV1HB102K	J	AA	0.001 µF,50V
C801	VCKYTV1CF105Z	J	AB	1 µF,16V
C802	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C803	VCKYPA1HB271K	J	AA	270 pF,50V
C804	VCKYTV1HB471K	J	AA	470 pF,50V
C805	VCFYDA1HA564J	J	AE	0.56 µF,50V,Thin Film
C806	VCKYTV1HB102K	J	AA	0.001 µF,50V
C807	VCKYTV1HB223K	J	AA	0.022 µF,50V
C808	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C809	RC-GZA476AF1A	J	AB	47 µF,10V,Electrolytic
C810	VCKYTV1HB222K	J	AA	0.0022 µF,50V
C811	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C817	VCCCTV1HH100D	J	AA	10 pF (CH),50V
C819	VCTYPA1CX103K	J	AA	0.01 µF,16V
C822,823	VCCCTV1HH100D	J	AA	10 pF (CH),50V
C840	VCKYBT1HB151K	J	AA	150 pF,50V
C901	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C902	VCKYTV1HF104Z	J	AA	0.1 µF,50V
C903	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C904	VCCCTV1HH680J	J	AA	68 pF (CH),50V
C905	VCCCTV1HH120J	J	AA	12 pF (CH),50V
C906	VCKYTV1CF105Z	J	AB	1 µF,16V
C907	RC-EZY105AF1H	J	AB	1 µF,50V,Electrolytic
C908	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C909	VCKYTV1CF105Z	J	AB	1 µF,16V
C910	RC-EZD106AF1C	J	AB	10 µF,16V,Electrolytic
C911	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C925~928	VCKYTV1HB102K	J	AA	0.001 µF,50V
C940	VCCCTV1HH101J	J	AA	100 pF (CH),50V
C941	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C980	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C990~992	VCCCTV1HH101J	J	AA	100 pF (CH),50V
C1101,1102	VCKYTV0JB105K	J	AD	1 µF,6.3V
C1103	VCKYTV1CF105Z	J	AB	1 µF,16V
C1104	VCKYTV1HB273K	J	AA	0.027 µF,50V
C1105	RC-KZ0002AWZZ	J	AE	10 µF,10V
C1106	VCKYTV1CB474K	J	AC	0.47 µF,16V
C1107	VCKYTV1HB472K	J	AA	0.0047 µF,50V
C1109	VCKYTV0JB105K	J	AD	1 µF,6.3V
C1110	VCKYTV1CB474K	J	AC	0.47 µF,16V
C1112~1116	VCCCCY1HH271J	J	AA	270 pF (CH),50V
C1117	VCKYCY1HB332K	J	AA	0.0033 µF,50V
C1118	VCKYTV1HB333K	J	AA	0.033 µF,50V
C1119	VCCCCY1HH331J	J	AA	330 pF (CH),50V
C1121	VCKYTV1CF105Z	J	AB	1 µF,16V
C1145	VCKYCY1CB333K	J	AA	0.033 µF,16V
C1202,1203	VCKYTV1CF105Z	J	AB	1 µF,16V
C1204,1205	VCCCCY1HH120J	J	AA	12 pF (CH),50V
C1206,1207	VCKYTV1CF105Z	J	AB	1 µF,16V
C1208	VCKYCY1CB473K	J	AA	0.047 µF,16V
C1209~1211	VCKYTV1CF105Z	J	AB	1 µF,16V
C1251	VCKYCY1CB273K	J	AA	0.027 µF,16V
C1252	VCCCTV1HH121J	J	AA	120 pF (CH),50V
C1254	RC-KZ0002AWZZ	J	AE	10 µF,10V
C1255	RC-KZ0003AWZZ	J	AE	4.7 µF,10V
C1401,1402	VCKYCY1CB473K	J	AA	0.047 µF,16V
C1403	VCKYCY1HB681K	J	AA	680 pF,50V
C1405	VCKYCY1EF104Z	J	AA	0.1 µF,25V
C1406	VCKYTV1CF105Z	J	AB	1 µF,16V
C1407	VCKYCY1CB223K	J	AA	0.022 µF,16V
C1412	VCKYCY1HB681K	J	AA	680 pF,50V
C1421~1424	VCKYCY1CB223K	J	AA	0.022 µF,16V
C1425	VCKYCY1CB473K	J	AA	0.047 µF,16V
C1601,1602	VCKYTV1CF105Z	J	AB	1 µF,16V
C1604	VCCCCY1HH560J	J	AA	56 pF (CH),50V
C1605	VCEAPS107AF1A	J	AD	100 µF,10V,Electrolytic
C1609	VCKYTQ1CF105Z	J	AC	1 µF,16V
C1610	RC-KZ0002AWZZ	J	AE	10 µF,10V

NO.	PART CODE	★	PRICE RANK	DESCRIPTION
C1631	VCKYTV1CF105Z	J	AB	1 µF,16V
C1650~1653	VCCSCY1HL821J	J	AA	820 pF,50V
C1654,1655	VCKYCY1EB153K	J	AA	0.015 µF,25V
C1656,1657	VCKYCY1HB562K	J	AA	0.0056 µF,50V
C1661	VCEAPS107AF1A	J	AD	100 µF,10V,Electrolytic
C1724	VCCCCY1HH220J	J	AA	22 pF (CH),50V
C1801	VCKYTQ1CF225Z	J	AB	2.2 µF,16V
C1802	VCEAPS107AF1A	J	AD	100 µF,10V,Electrolytic
C1803	VCKYTQ1CF225Z	J	AB	2.2 µF,16V
C1805	VCKYTV1CF105Z	J	AB	1 µF,16V
C1806	RC-KZ0002AWZZ	J	AE	10 µF,10V
C1807	VCEAPS227AF0G	J	AC	220 µF,4V,Electrolytic
C1913	VCCCCY1HH220J	J	AA	22 pF (CH),50V
C1917	VCCCCY1HH680J	J	AA	68 pF (CH),50V
C1927	VCKYCY1CB473K	J	AA	0.047 µF,16V
C1951	VCKYCY1CB473K	J	AA	0.047 µF,16V
C1952	VCKYCY1CB103K	J	AA	0.01 µF,16V
C1953	VCKYTV1CB474K	J	AC	0.47 µF,16V
C1954	VCCCCY1HH150J	J	AA	15 pF (CH),50V
C1955	VCKYCY1CB473K	J	AA	0.047 µF,16V
C1956	VCEAPS476AF0J	J	AC	47 µF,6.3V,Electrolytic
C1957	VCEAPS107AF0J	J	AC	100 µF,6.3V,Electrolytic
C1958	VCKYCY1CB473K	J	AA	0.047 µF,16V
C1964	VCKYCY1HB102K	J	AA	1000 pF,50V
C1990	VCKYTV0JB105K	J	AD	1 µF,6.3V
C1991	RC-KZ0002AWZZ	J	AE	10 µF,10V
C1992	VCKYCY1EF104Z	J	AA	0.1 µF,25V
CB102	VCCSPU1HL101J	J	AA	100 pF,50V
CB103	VCKYPA1HB471K	J	AA	470 pF,50V
CB104	VCCSPU1HL101J	J	AA	100 pF,50V
CB105	VCKYPA1HB471K	J	AA	470 pF,50V
CB106	RC-GZA107AF1C	J	AB	100 µF,16V,Electrolytic
CB107~114	VCCSPA1HL101J	J	AA	100 pF,50V
CB120	VCCSPA1HL101J	J	AA	100 pF,50V
CB121	RC-GZA107AF1C	J	AB	100 µF,16V,Electrolytic
CB123	RC-QZA473AFYJ	J	AB	0.047 µF,50V,Mylar
CB125~127	VCCSPA1HL101J	J	AA	100 pF,50V
CB130	RC-QZA473AFYJ	J	AB	0.047 µF,50V,Mylar
CB132	VCCSPA1HL101J	J	AA	100 pF,50V
CB133,134	RC-QZA104AFYJ	J	AC	0.1 µF,50V,Mylar
CB140,141	RC-QZA104AFYJ	J	AC	0.1 µF,50V,Mylar
CB151	VCKYPU1HB271K	J	AA	270 pF,50V
CB152	VCKYPU1HB471K	J	AA	470 pF,50V
CB153	VCTYPA1CX104K	J	AB	0.1 µF,16V
JC171	VCCCTV1HH220J	J	AA	22 pF (CH),50V
JC196	VCCCTV1HH220J	J	AA	22 pF (CH),50V

RESISTORS

	VRD-SA2CD0R0J	J	AB	0 ohm,Jumper,ø1.9×3.4mm,Red
	VRS-CY1JB000J	J	AA	0 ohm,Jumper,0.8×1.55mm, Green
	VRS-TQ2BB000J	J	AA	0 ohm,Jumper,1.55×3.1mm, Green
	VRS-TV2AB000J	J	AA	0 ohm,Jumper,1.25×2mm,Green
J1405	VRS-CY1JB103J	J	AA	10 kohm,1/16W
JP908	VRD-ST2CD102J	J	AA	1 kohm,1/6W
JP917,918	VRD-ST2CD102J	J	AA	1 kohm,1/6W
LR190	VRS-TV2AB220J	J	AA	22 ohms,1/10W
R101~104	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R105,106	VRD-ST2CD104J	J	AA	100 kohm,1/6W
R107,108	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R109,110	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R111,112	VRS-TV2AB152J	J	AA	1.5 kohms,1/10W
R113,114	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R115,116	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R119,120	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R202	VRS-TV2AB684J	J	AA	680 kohms,1/10W
R203	VRS-TV2AB105J	J	AA	1 Mohm,1/10W
R205,206	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R301	VRD-ST2CD820J	J	AA	82 ohms,1/6W
R302	VRD-ST2CD331J	J	AA	330 ohms,1/6W
R303	VRS-TV2AB224J	J	AA	220 kohms,1/10W
R304	VRS-TV2AB272J	J	AA	2.7 kohms,1/10W
R305	VRS-TV2AB563J	J	AA	56 kohms,1/10W
R306	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R307	VRS-TV2AB220J	J	AA	22 ohms,1/10W
R308	VRD-ST2CD220J	J	AA	22 ohms,1/6W
R309	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R310	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R311	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R312	VRS-TV2AB823J	J	AA	82 kohms,1/10W
R313	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R350	VRS-TV2AB101J	J	AA	100 ohm,1/10W
R351,352	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R353,354	VRS-TV2AB472J	J	AA	4.7 kohms,1/10W
R355,356	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R357,358	VRS-TV2AB821J	J	AA	820 ohms,1/10W
R359,360	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R361,362	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R380	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R381	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R382,383	VRS-TV2AB181J	J	AA	180 ohms,1/10W
R401~404	VRS-TV2AB561J	J	AA	560 ohms,1/10W
R405	VRS-TV2AB331J	J	AA	330 ohms,1/10W
R406~410	VRS-TV2AB224J	J	AA	220 kohms,1/10W
R411~413	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R414~416	VRS-TV2AB822J	J	AA	8.2 kohms,1/10W
R417	VRD-ST2CD393J	J	AA	39 kohms,1/6W
R418	VRD-ST2CD683J	J	AA	68 kohms,1/6W
R419	VRS-TV2AB683J	J	AA	68 kohms,1/10W
R451,452	VRS-TV2AB331J	J	AA	330 ohms,1/10W
R453,454	VRS-TV2AB333J	J	AA	33 kohms,1/10W
R455,456	VRS-TV2AB101J	J	AA	100 ohm,1/10W
R457	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R458	VRD-ST2CD103J	J	AA	10 kohm,1/6W
⚠ R501	RH-QX1067AFZZ	J	AE	Posistor,8.2 ohms
⚠ R502	RH-QX0003AWZZ	J	AK	Posistor,2.2 ohms
R503	VRS-TV2AB182J	J	AA	1.8 kohms,1/10W
R504	VRS-TV2AB333J	J	AA	33 kohms,1/10W
R505	VRD-ST2CD681J	J	AA	680 ohms,1/6W
R506	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R507	VRD-ST2CD681J	J	AA	680 ohms,1/6W
R508	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R509	VRD-ST2CD821J	J	AA	820 ohms,1/6W
R510	VRD-ST2CD101J	J	AA	100 ohm,1/6W
⚠ R511	RH-QX1066AFZZ	J	AE	0.8 ohms,Posistor
R512	VRD-ST2CD471J	J	AA	470 ohms,1/6W
R514	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R516	VRS-TV2AB224J	J	AA	220 kohms,1/10W
R517,518	VRD-ST2EE221J	J	AA	220 ohms,1/4W
⚠ R519	RH-QX0008AWZZ	J	AF	Posistor,0.9 ohms
R520	VRD-ST2CD271J	J	AA	270 ohms,1/6W
⚠ R522	RH-QX0008AWZZ	J	AF	Posistor,0.9 ohms
R523	VRD-ST2CD221J	J	AA	220 ohms,1/6W
R524	VRS-TV2AB333J	J	AA	33 kohms,1/10W
R526	VRD-ST2CD681J	J	AA	680 ohms,1/6W
⚠ R551	RH-QX1067AFZZ	J	AE	Posistor,8.2 ohms
R601,602	VRS-TV2AB471J	J	AA	470 ohms,1/10W
R605,606	VRS-TV2AB223J	J	AA	22 kohms,1/10W
R607,608	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R609,610	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R611,612	VRS-TV2AB152J	J	AA	1.5 kohms,1/10W
R613,614	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R615,616	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R617,618	VRS-TV2AB331J	J	AA	330 ohms,1/10W
R619,620	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R651,652	VRD-ST2CD104J	J	AA	100 kohm,1/6W
R653,654	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R659,660	VRD-ST2CD100J	J	AA	10 ohm,1/6W
R663,664	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R667,668	VRD-ST2EE820J	J	AA	82 ohms,1/4W
R669	VRS-TV2AB272J	J	AA	2.7 kohms,1/10W
R670	VRS-TV2AB331J	J	AA	330 ohms,1/10W
R701	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R702,703	VRS-TV2AB823J	J	AA	82 kohms,1/10W
R750	VRS-TV2AB184J	J	AA	180 kohms,1/10W
R751	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R753	VRD-ST2EE180J	J	AA	18 ohms,1/4W
R754	VRS-TV2AB470J	J	AA	47 ohms,1/10W
R755,756	VRS-TV2AB223J	J	AA	22 kohms,1/10W
R757	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R758	VRS-TV2AB123J	J	AA	12 kohms,1/10W
R759	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R760	VRS-TV2AB472J	J	AA	4.7 kohms,1/10W
R761	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R762	VRS-TV2AB153J	J	AA	15 kohms,1/10W
R763	VRS-TV2AB274J	J	AA	270 kohms,1/10W
R764	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R765	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R766	VRS-TV2AB221J	J	AA	220 ohms,1/10W
R767	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R768	VRS-TV2AB393J	J	AA	39 kohms,1/10W
R769~771	VRS-TV2AB273J	J	AA	27 kohms,1/10W

NO.	PART CODE	★	PRICE RANK	DESCRIPTION
R772	VRS-TV2AB823J	J	AA	82 kohms,1/10W
R773	VRS-TV2AB562J	J	AA	5.6 kohms,1/10W
R774	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R775	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R776	VRS-TV2AB223J	J	AA	22 kohms,1/10W
R777	VRS-TV2AB333J	J	AA	33 kohms,1/10W
R778	VRS-TV2AB224J	J	AA	220 kohms,1/10W
R779	VRS-TV2AB123J	J	AA	12 kohms,1/10W
R780	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R781	VRD-ST2CD122J	J	AA	1.2 kohms,1/6W
R790~793	VRS-TV2AB124J	J	AA	120 kohms,1/10W
R794,795	VRS-TV2AB683J	J	AA	68 kohms,1/10W
R801	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R802	VRS-TV2AB184J	J	AA	180 kohms,1/10W
R803	VRS-TV2AB335J	J	AA	3.3 Mohms,1/10W
R804	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R805	VRS-TV2AB333J	J	AA	33 kohms,1/10W
R807	VRS-TV2AB101J	J	AA	100 ohm,1/10W
R808,809	VRD-ST2CD564J	J	AA	560 kohms,1/6W
R811	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R812	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R813	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R883	VRS-TV2AB331J	J	AA	330 ohms,1/10W
R903	VRS-TV2AB182J	J	AA	1.8 kohms,1/10W
R904	VRS-TV2AB475J	J	AA	4.7 Mohms,10W
R905	VRS-TV2AB105J	J	AA	1 Mohm,1/10W
R906	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R907~922	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R923	VRS-TV2AB224J	J	AA	220 kohms,1/10W
R930	VRD-ST2CD474J	J	AA	470 kohms,1/6W
R931	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R932	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R935	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R936	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R937	VRD-ST2CD474J	J	AA	470 kohms,1/6W
R940	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R941	VRD-ST2CD101J	J	AA	100 ohm,1/6W
R945	VRS-TV2AB123J	J	AA	12 kohms,1/10W
R946	VRS-TV2AB682J	J	AA	6.8 kohms,1/10W
R947	VRS-TV2AB123J	J	AA	12 kohms,1/10W
R950	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R951	VRS-TV2AB122J	J	AA	1.2 kohms,1/10W
R952	VRS-TV2AB152J	J	AA	1.5 kohms,1/10W
R953	VRS-TV2AB182J	J	AA	1.8 kohms,1/10W
R954	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R955	VRD-ST2CD122J	J	AA	1.2 kohms,1/6W
R956	VRD-ST2CD152J	J	AA	1.5 kohms,1/6W
R957	VRD-ST2CD182J	J	AA	1.8 kohms,1/6W
R958	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W
R959	VRD-ST2CD392J	J	AA	3.9 kohms,1/6W
R960	VRD-ST2CD333J	J	AA	33 kohms,1/6W
R962	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R963	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R964	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R965	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R966	VRD-ST2CD122J	J	AA	1.2 kohms,1/6W
R967	VRS-TV2AB152J	J	AA	1.5 kohms,1/10W
R968	VRS-TV2AB182J	J	AA	1.8 kohms,1/10W
R969	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W
R970	VRD-ST2CD392J	J	AA	3.9 kohms,1/6W
R971	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R972	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R973	VRD-ST2CD183J	J	AA	18 kohms,1/6W
R975~977	VRD-ST2CD221J	J	AA	220 ohms,1/6W
R997	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R998	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R1100	VRS-TQ2BB270J	J	AA	27 ohms,1/8W
R1102	VRS-CY1JB561J	J	AA	560 ohms,1/16W
R1105	VRS-CY1JB394J	J	AA	390 kohms,1/16W
R1106	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1107	VRS-CY1JB1R0J	J	AA	1 ohm,1/16W
R1150~1154	VRS-CY1JB223J	J	AA	22 kohms,1/16W
R1155	VRS-CY1JB563J	J	AA	56 kohms,1/16W
R1166	VRS-CY1JB122J	J	AA	1.2 kohms,1/16W
R1201	VRS-CY1JB151J	J	AA	150 ohms,1/16W
R1202	VRS-CY1JB105J	J	AA	1 Mohm,1/16W
R1210	VRS-CY1JB101J	J	AA	100 ohm,1/16W
R1211	VRS-CY1JB221J	J	AA	220 ohms,1/16W
R1221	VRS-CY1JB221J	J	AA	220 ohms,1/16W
R1223	VRS-TV2AB681J	J	AA	680 ohms,1/10W
R1251	VRS-CY1JB100J	J	AA	10 ohm,1/16W
R1254	VRS-TV2AB221J	J	AA	220 ohms,1/10W

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
R1261~1263	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1266	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1281	VRS-CY1JB470J	J	AA	47 ohms,1/16W
R1401	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1404	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1406,1407	VRS-CY1JB332J	J	AA	3.3 kohms,1/16W
R1408	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R1409	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1412	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R1413	VRS-CY1JB332J	J	AA	3.3 kohms,1/16W
R1414	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1415	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1416	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1418	VRS-CY1JB473J	J	AA	47 kohms,1/16W
R1420	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1422~1424	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1425	VRS-CY1JB272J	J	AA	2.7 kohms,1/16W
R1426	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1427	VRS-CY1JB472J	J	AA	4.7 kohms,1/16W
R1428	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1429,1430	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1452	VRS-CY1JB332J	J	AA	3.3 kohms,1/16W
R1454	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1456	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1458	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1459	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1460	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1461	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1462	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1463	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1464	VRS-CY1JB221J	J	AA	220 ohms,1/16W
R1466	VRS-CY1JB221J	J	AA	220 ohms,1/16W
R1471	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1472	VRS-CY1JB473J	J	AA	47 kohms,1/16W
R1473	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R1474~1476	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1477	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1609	VRS-CY1JB152J	J	AA	1.5 kohms,1/16W
R1610	VRS-CY1JB303D	J	AA	30 kohms,1/16W
R1611	VRS-CY1JB123D	J	AA	12 kohms,1/16W
R1612	VRS-CY1JB563J	J	AA	56 kohms,1/16W
R1613	VRS-CY1JB273J	J	AA	27 kohms,1/16W
R1614	VRS-CY1JB183D	J	AA	18 kohms,1/16W
R1617	VRS-CY1JB473J	J	AA	47 kohms,1/16W
R1650	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1651	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R1652	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1653	VRS-CY1JB104J	J	AA	100 kohm,1/16W
R1654	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1655	VRS-CY1JB124J	J	AA	120 kohms,1/16W
R1656	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1657	VRS-CY1JB124J	J	AA	120 kohms,1/16W
R1658	VRS-CY1JB153J	J	AA	15 kohms,1/16W
R1659	VRS-CY1JB823J	J	AA	82 kohms,1/16W
R1660	VRS-CY1JB153J	J	AA	15 kohms,1/16W
R1661	VRS-CY1JB823J	J	AA	82 kohms,1/16W
R1662	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1663	VRS-CY1JB623J	J	AA	62 kohms,1/16W
R1664	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1665	VRS-CY1JB623J	J	AA	62 kohms,1/16W
R1666,1667	VRS-CY1JB223J	J	AA	22 kohms,1/16W
R1668,1669	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1708	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1733	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1758,1759	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1801	VRS-CY1JB182J	J	AA	1.8 kohms,1/16W
R1802	VRS-CY1JB271J	J	AA	270 ohms,1/16W
R1804	VRS-CY1JB224D	J	AA	220 kohms,1/16W
R1805	VRS-CY1JB104D	J	AA	100 kohm,1/16W
R1808	VRS-CY1JB273J	J	AA	27 kohms,1/16W
R1809	VRS-CY1JB391J	J	AA	390 ohms,1/16W
R1820,1821	VRS-TV2AB1R0J	J	AA	1 ohm,1/10W
R1827	VRS-CY1JB271J	J	AA	270 ohms,1/16W
R1901	VRS-TV2AB471J	J	AA	470 ohms,1/10W
R1902	VRS-TV2AB182J	J	AA	1.8 kohms,1/10W
R1903,1904	VRS-TV2AB821J	J	AA	820 ohms,1/10W
R1927	VRS-TV2AB220J	J	AA	22 ohms,1/10W
R1939	VRS-CY1JB102J	J	AA	1 kohm,1/16W
R1940	VRS-CY1JB221J	J	AA	220 ohms,1/16W
R1947	VRS-TV2AB470J	J	AA	47 ohms,1/10W
R1952,1953	VRS-CY1JB470J	J	AA	47 ohms,1/16W
R1961	VRS-CY1JB101J	J	AA	100 ohm,1/16W

NO.	PART CODE	★	PRICE RANK	DESCRIPTION
R1962	VRS-CY1JB224J	J	AA	220 kohms,1/16W
R1963	VRS-CY1JB152J	J	AA	1.5 kohms,1/16W
R1964	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1965	VRS-CY1JB103J	J	AA	10 kohm,1/16W
R1967	VRS-CY1JB470J	J	AA	47 ohms,1/16W
R1968	VRS-CY1JB221J	J	AA	220 ohms,1/16W
R1969	VRS-TQ2BB560J	J	AA	56 ohms,1/8W
R1973	VRS-CY1JB682J	J	AA	6.8 kohms,1/16W
R1974	VRS-CY1JB221J	J	AA	220 ohms,1/16W
R1994	VRS-CY1JB470J	J	AA	47 ohms,1/16W
RA901~904	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RA905~908	VRS-TV2AB102J	J	AA	1 kohm,1/10W
RA911	VRS-TV2AB102J	J	AA	1 kohm,1/10W
RA912~915	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RA919,920	VRS-TV2AB102J	J	AA	1 kohm,1/10W
RA921~926	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RA927	VRS-TV2AB102J	J	AA	1 kohm,1/10W
RA929	VRS-TV2AB102J	J	AA	1 kohm,1/10W
RA930	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RA931	VRS-TV2AB102J	J	AA	1 kohm,1/10W
RA932	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RA933~936	VRS-TV2AB102J	J	AA	1 kohm,1/10W
RA937	VRS-TQ2BB102J	J	AA	1 kohm,1/8W
RB103	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RB105	VRD-ST2CD104J	J	AA	100 kohm,1/6W
RB106	VRD-ST2CD224J	J	AA	220 kohms,1/6W
RB107	VRD-ST2CD104J	J	AA	100 kohm,1/6W
RB108	VRD-ST2CD224J	J	AA	220 kohms,1/6W
RB109~112	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RB113~120	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
RB121~128	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RB133	VRD-ST2CD103J	J	AA	10 kohm,1/6W
RB139,140	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RB141	VRD-RT2HD1R0J	J	AA	1 ohm,1/2W
RB142	VRD-ST2CD561J	J	AA	560 ohms,1/6W
RB146~148	VRD-ST2CD102J	J	AA	1 kohm,1/6W
RB149	VRD-RT2HD1R0J	J	AA	1 ohm,1/2W
RB150	VRD-ST2CD471J	J	AA	470 ohms,1/6W
RB161	VRD-ST2CD224J	J	AA	220 kohms,1/6W

OTHER CIRCUITRY PARTS

BI351/CNS351	QCNWN1164AWZZ	J	AK	Connector Ass'y,6/6Pin
BI851/CNS502	QCNWN1180AWZZ	J	AG	Connector Ass'y,4/2Pin
BIB101/CNS504	QCNWN0850AWZZ	J	AE	Connector Ass'y,6/5Pin
BIB102/CNS505	QCNWN0851AWZZ	J	AE	Connector Ass'y,5/4Pin
BIB104/CNSB2	QCNWN0853AWZZ	J	AF	Connector Ass'y,5/5Pin
CN1101	QCNCWY028AFZZ	J	AE	Plug,23Pin
CN1252	QCNCM891BAFZZ	J	AC	Plug,2Pin
CN1601	QCNCWXC05AFZZ	J	AC	Plug,5Pin
CN1602	QCNCM890BAF02	J	AD	Plug,2Pin
CN1603	QCNCM890BAFZZ	J	AC	Plug,2Pin
CN1604	QCNCM890BAF06	J	AD	Plug,2Pin
CN1901	QCNCW037EAWZZ	J	AH	Socket,5Pin
CN1902	QCNCWZC24AWZZ	J	AH	Socket,24Pin
CN1904	QCNCM891DAFZZ	J	AD	Plug,4Pin
CNP101	92LCONPB6BPHK	J	AB	Plug,6Pin
CNP301	92LCONE6P53014	J	AC	Plug,6Pin
CNP351	92LCONE6P53253	J	AC	Plug,6Pin
CNP401	QCNCWYZ24AWZZ	J	AE	Plug,24Pin
CNP402	QCNCWZM24AWZZ	J	AH	Socket,24Pin
CNP502	92LCONE4P53014	J	AC	Plug,4Pin
CNP503	92LCONPB5BPHK	J	AC	Plug,5Pin
CNP504	92LCONE5P53253	J	AB	Plug,5Pin
CNP505	92LCONE4P53253	J	AB	Plug,4Pin
CNP651,652	92LCONPB3BPHK	J	AB	Plug,3Pin
CNP700A	92LCONE6P53253	J	AC	Plug,6Pin
CNP700B	92LCONE6P53254	J	AC	Plug,6Pin
CNP751	92LCONPB8BPHK	J	AC	Plug,8Pin
CNP752	92LCONPB7BPHK	J	AC	Plug,7Pin
CNP800	92LCONPB12BPHK	J	AD	Plug,12Pin
CNP801	92LCONE2P53253	J	AB	Plug,2Pin
CNP901	QCNCWZK24AWZZ	J	AE	Plug,24Pin
CNPB1	92LCONE6P53253	J	AC	Plug,6Pin
CNPB2	92LCONE5P53253	J	AB	Plug,5Pin
CNS101	QCNWN1163AWZZ	J	AH	Connector Ass'y,6Pin
CNS301/CNS801/CNS1904	QCNWN1175AWZZ	J	AN	Connector Ass'y,6/2/4Pin
CNS651	QCNWN1165AWZZ	J	AH	Connector Ass'y,3Pin
CNS652	QCNWN1166AWZZ	J	AK	Connector Ass'y,3Pin
CNS700A/B	92LCONE6P53253	J	AC	Connector Ass'y,6/6Pin
CNS751A/B	QCNCM705HAFZZ	J	AB	Connector Ass'y,8/8Pin
CNS752A/B	QCNCM705GAFZZ	J	AB	Connector Ass'y,7/7Pin

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
CNS902	QCNWN1167AWZZ	J	AH	Connector Ass'y,5Pin
CNS903	QCNWN1168AWZZ	J	AL	Connector Ass'y,12Pin
CNS1252	QCNWN1044AWZZ	J	AG	Connector Ass'y,2Pin
CNSB1	QCNWN0852AWZZ	J	AE	Connector Ass'y,6Pin
CW1901	QCNWN1042AWZZ	J	AD	Flat Cable,5Pin
⚠F551~553	92LFUSET102H	J	AD	Fuse,1A
FC401	QCNWN1176AWZZ	J	AK	Flat Cable,24Pin
FC402	QCNWN1177AWZZ	J	AH	Flat Cable,24Pin
FL901	VVK15BT37G/-1	J	BD	FL Display
FW950	QCNWN1169AWZZ	J	AD	Flat Wire,4Pin
FW951	QCNWN1170AWZZ	J	AE	Flat Wire,7Pin
J101	92LJACKL1779A	J	AG	Jack,AUX/LINE OUT
J301	QJAKZ0011AWZZ	J	AE	Jack,Digital 2 Coaxial
J351	QJAKK0001AWZZ	J	AG	Jack,Mic
J651	QJAKJ0006AWZZ	J	AG	Jack,Headphones
M701	92LMTR1854CASY	J	AS	Motor with Chassis [Spindle]
M702	92LMTR1854BASY	J	AP	Motor with Gear [Sled]
M901	RMOTV0012AWZZ	J	AV	MD Spindle Motor Ass'y
M902	RMOTV0013AWM1	J	AQ	MD Sled Motor Ass'y
M903	RMOTV0014AWM1	J	AQ	MD Loading Motor Ass'y
MOB1	RMOTV0373AFM1	J	AQ	Main Cam Motor Ass'y
MOB2	RMOTV0373AFM1	J	AQ	Tray Motor Ass'y
RX301	VHPGP1F32R/-1	J	AP	Optical Fiber Data Link, GP1F32R
SW501	92LSWICH-1385A	J	AC	Switch,Key Type [RESET]
SW702	QSW-F9001AWZZ	J	AE	Switch,Push Type [Pickup In]
SW901	QSW-Z0003AWZZ	J	AH	Switch,Push Type [JOG]
SW950	QSW-K0006AWZZ	J	AC	Switch,Key Type [POWER]
SW951	QSW-K0006AWZZ	J	AC	Switch,Key Type [MD-PLAY]
SW952	QSW-K0006AWZZ	J	AC	Switch,Key Type [MD-STOP]
SW953	QSW-K0006AWZZ	J	AC	Switch,Key Type [MD-REC]
SW954	QSW-K0006AWZZ	J	AC	Switch,Key Type [CUE]
SW955	QSW-K0006AWZZ	J	AC	Switch,Key Type [MD-EJECT]
SW956	QSW-K0006AWZZ	J	AC	Switch,Key Type [ENTER]
SW957	QSW-K0006AWZZ	J	AC	Switch,Key Type [NAME]
SW958	QSW-K0006AWZZ	J	AC	Switch,Key Type [TIMER]
SW959	QSW-K0006AWZZ	J	AC	Switch,Key Type [DISP]
SW960	QSW-K0006AWZZ	J	AC	Switch,Key Type [REVIEW]
SW961	QSW-K0006AWZZ	J	AC	Switch,Key Type [AUX]
SW962	QSW-K0006AWZZ	J	AC	Switch,Key Type [UND]
SW980	QSW-K0006AWZZ	J	AC	Switch,Key Type [CD-PLAY]
SW981	QSW-K0006AWZZ	J	AC	Switch,Key Type [CD-STOP]
SW982	QSW-K0006AWZZ	J	AC	Switch,Key Type [DISC 1]
SW983	QSW-K0006AWZZ	J	AC	Switch,Key Type [DISC 2]
SW984	QSW-K0006AWZZ	J	AC	Switch,Key Type [DISC 3]
SW985	QSW-K0006AWZZ	J	AC	Switch,Key Type [DISC 1 OPEN/CLOSE]
SW986	QSW-K0006AWZZ	J	AC	Switch,Key Type [DISC 2 OPEN/CLOSE]
SW987	QSW-K0006AWZZ	J	AC	Switch,Key Type [DISC 3 OPEN/CLOSE]
SW988	QSW-K0006AWZZ	J	AC	Switch,Key Type [START]
SW989	QSW-K0006AWZZ	J	AC	Switch,Key Type [TOC•EDIT]
SW1952	QSW-P0006AWZZ	J	AG	Switch,Push Type [Direct]
SW1953	QSW-M0157AFZZ	J	AD	Switch,Slide Type [Lead In]
SW1954	QSW-M0002AWZZ	J	AD	Switch,Push Type [Play]
SW1955	QSW-M0002AWZZ	J	AD	Switch,Push Type [Rec]
SW1956	QSW-M0156AFZZ	J	AC	Switch,Push Type [Loading]
SWB101,102	QSW-F0353AFZZ	J	AD	Switch,Leaf Type [Cam 1,2]
SWB103,104	QSW-F0353AFZZ	J	AD	Switch,Leaf Type [Cam 3,4]
SWB105	QSW-P0920AFZZ	J	AC	Switch,Push Type [CD Eject]
SWB106	QSW-P0920AFZZ	J	AC	Switch,Push Type [CD Tray Close]
SWB107	QSW-P0920AFZZ	J	AC	Switch,Push Type [CD In]
SWB108	QSW-P0920AFZZ	J	AC	Switch,Push Type [CD Set]
TP751	92LCONE6P5267X	J	AC	Plug,6Pin,Test Point
TX301	VHPGP1F32T/-1	J	AP	Optical Fiber Data Link, GP1F32T
UN940	VHLN63H380A-1	J	AK	Remote Sensor,N63H380A

MECHANICAL PARTS

1	LANGF0033AWZZ	J	AD	MD Guide (A)
2	LANGF0034AWZZ	J	AD	MD Guide (B)
3	LANGK0092AWFW	J	AM	Base Frame
4	LCHSM0060AWM1	J	AP	Chassis,Drive
5	LHLDX3001AWM1	J	AP	Holder,Cartridge Ass'y
6	MLEVF0024AWM1	J	AF	Lever,Cam Plate Ass'y
7	MLEVF0025AWZZ	J	AD	Arm,H/A Shift
8	MLEVF0026AWZZ	J	AF	Arm,Holder
9	MLEVF0029AWM1	J	AL	Lever,Roller Arm Sub Ass'y
10	MLEVP0075AWZZ	J	AD	Lever,Clampa

NO.	PART CODE	★	PRICE RANK	DESCRIPTION
11	MLEVP0076AWZZ	J	AC	Lever,Catch
12	MLEVP0077AWZZ	J	AC	Lever,Slider
13	MSPRD0103AWFJ	J	AB	Spring,Roller Holder
14	MSPRD0105AWFJ	J	AB	Spring,Spin
15	MSPRD1318AFFJ	J	AB	Spring,Shift Arm
16	MSPRD1319AFFJ	J	AB	Spring,Holder Arm
17	MSPRD1321AFFJ	J	AB	Spring,Lack
18	MSPRD1334AFFJ	J	AC	Spring,Catch
19	MSPRP0015AWFJ	J	AB	Spring,Board (A)
20	MSPRP0017AWFJ	J	AB	Spring,Drive Shaft
21	MSPRT1566AFFJ	J	AB	Spring,Roller Arm
22	NGERH0066AWZZ	J	AC	Gear,Loading (B)
23	NGERH0067AWZZ	J	AC	Gear,Drive
24	NGERH0068AWZZ	J	AC	Gear,Loading (A)
25	NGERH0069AWZZ	J	AC	Gear,Roller
26	NGERR0002AWZZ	J	AC	Gear,Lack
29	NROLP0010AWZZ	J	AC	Holder,Roller
30	NROLR0001AWZZ	J	AC	Roller,Transfer
31	NSFTD0005AWFT	J	AF	Shaft,Drive
32	NSFTM0017AWFW	J	AC	Shaft,Loading Gear
33	NSFTM0277AFFW	J	AC	Shaft,Pickup Slide
34	NSFTM0278AFFW	J	AC	Shaft,Pickup Guide
35	PCOVS3021AWFW	J	AL	Cover,Shield Top
37	PCUSG0531AFSA	J	AD	Cushion (A)
38	PCUSG0531AFSB	J	AD	Cushion (B)
39	PCUSS0041AWZZ	J	AC	Cushion,Head
40	RCILH0108AFZZ	J	AP	Magnetic Head
⚠41	RCTRH8173AF10	J		Optical Pickup Unit
42	QCNWN6715AFM1	J	AM	MD Flat Cable,24Pin
43	QCNWN1050AWZZ	J	AH	Connector Ass'y,2Pin
45	PSHEP0024AWZZ	J	AC	Sheet,Head
46	MLEVP0078AWZZ	J	AC	Arm (A)
47	MLEVP0079AWZZ	J	AC	Arm (B)
48	LANGF0036AWZZ	J	AC	Bracket,Cartridge
49	MSPRT0020AWFJ	J	AB	Spring,Arm
50	PSHEP0026AWZZ	J	AC	Sheet,Head Lead Wire
601	LX-BZ0030AWZZ	J	AB	Screw,ø1.7×9.5mm
602	LX-BZ0031AWZZ	J	AB	Screw,ø1.7×7.5mm
603	LX-BZ0032AWZZ	J	AB	Screw,ø1.7×2mm
604	LX-BZ0804AFFF	J	AA	Screw,ø1.4×2.2mm
605	LX-BZ0846AFZZ	J	AB	Screw,ø1.7×3mm
606	LX-BZ0851AFZZ	J	AB	Screw,ø1.7×2.5mm
607	LX-BZ0852AFFD	J	AC	Screw,ø1.7×8.9mm
608	LX-BZ0883AFZZ	J	AB	Screw,ø1.7×5mm
609	LX-WZ9268AFZZ	J	AA	Washer,ø1.5×ø3.2×0.5mm
610	LX-WZ9269AFZZ	J	AA	Washer,ø1.2×ø3×0.25mm
611	XBPSD20P04K00	J	AA	Screw,ø2×4mm with Washer
612	XSPSN17P03K00	J	AB	Screw,ø1.7×3mm
613	LX-BZ0034AWZZ	J	AC	Screw,Special Type
M901	RMOTV0012AWZZ	J	AV	MD Spindle Motor Ass'y
M902	RMOTV0013AWM1	J	AQ	MD Sled Motor Ass'y
M903	RMOTV0014AWM1	J	AQ	MD Loading Motor Ass'y
SW1952	QSW-P0006AWZZ	J	AG	Switch,Push Type [Direct]
SW1953	QSW-M0157AFZZ	J	AD	Switch,Slide Type [Lead In]
SW1954	QSW-M0002AWZZ	J	AD	Switch,Push Type [Play]
SW1955	QSW-M0002AWZZ	J	AD	Switch,Push Type [Rec.]
SW1956	QSW-M0156AFZZ	J	AC	Switch,Push Type [Loading]

CD MECHANISM PARTS

301	NGERH0011AWZZ	J	AC	Gear,Middle
302	NGERH0012AWZZ	J	AC	Gear,Drive
303	MLEVP0010AWZZ	J	AC	Rail,Guide
304	NSFTM0002AWFW	J	AE	Shaft,Guide
305	PCUSG0427AFSC	J	AC	Cushion
⚠306	RCTRH8164AFZZ	J	BF	Pickup Unit Ass'y
306- 1	————		—	Pickup Unit (Not Replacement Item)
306- 2	NGERR0043AFZZ	J	AC	Gear,Rack
306- 3	MSPRC0961AFZZ	J	AA	Spring,Rack
701	92L2R6S+6CZ	J	AB	Screw,ø2.6×6mm
702	92L2TTS+5BB	J	AB	Screw,ø2×5mm
703	92L2S+3PZ	J	AA	Screw,ø2×3mm
704	92L1R5WC3R8R25	J	AA	Washer,ø1.5×ø3.8×0.25mm
M701	92LMTR1858CASY	J	AS	Motor with Chassis [Spin]
M702	92LMTR1854BASY	J	AP	Motor with Gear [Slide]
SW702	QSW-F9001AWZZ	J	AE	Switch,Push Type [Pickup In]

CHANGER MECHANISM

101	LCHSM0037AWZZ	J	AP	Main Base
102	LANGF0024AWZZ	J	AE	Top Board
103	NROLP0007AWZZ	J	AB	Rollar,Cam Guide
104	NPLYR0004AWZZ	J	AC	Pulley,Drive
105	NGERH0052AWZZ	J	AC	Gear,Idler
106	NGERH0053AWZZ	J	AB	Gear,Cam
107	NGERH0054AWZZ	J	AB	Gear,Midle
108	NGERH0057AWZZ	J	AB	Gear,Tray Idler
109	MCAMP0127AFZZ	J	AR	Main Cam
110	MLEVP0056AWZZ	J	AC	Lever,Front Switch
111	MLEVP0057AWM1	J	AC	Lever,Rear Switch Ass'y
112	MLEVP0058AWZZ	J	AB	Lever,Tray Lock
113	PGIDM0018AWZZ	J	AF	Holder Mecha
114	PGIDM0019AWZZ	J	AE	Stabilizer Holder
115	LHLDM1008AWZZ	J	AD	Stabilizer
116	PGIDM0017AWZZ	J	AC	Guide,Mecha Holder
119	GCOVA1126AWZZ	J	AL	Tray,Guide
120	GCOVA1127AWZZ	J	AF	Tray,Disc
121	LANGF0025AWZZ	J	AB	Bracket,Switch
122	NSFTL0001AWZZ	J	AB	Shaft,Tray Change
123	MSPRD0078AWFJ	J	AB	Spring,Tray Switch
124	MSPRD0080AWFJ	J	AB	Spring,Tray Lock Lever
125	MSPRD0079AWFJ	J	AB	Spring,Disc Top
126	NBLTK0028AWZZ	J	AB	Belt,Tray Drive
127	NBLTK0027AWZZ	J	AB	Belt,Cam Drive
128	PMAGF0001AWZZ	J	AF	Magnet
129	92LN-BAND1318A	J	AA	Nylon Band,80mm
130	PGUMS0012AWZZ	J	AB	Tray Rover
131	LANGF0028AWZZ	J	AB	Bracket,Mecha Holder
132	LCHSM0038AWZZ	J	AK	Changer Box
133	NGERH0055AWZZ	J	AC	Gear,Center
134	NGERH0056AWZZ	J	AB	Gear,Center Tray
135	NGERH0058AWZZ	J	AB	Gear,Tray Drive
136	MLEVP0052AWZZ	J	AC	Lever,Tray Change
137	MLEVP0053AWZZ	J	AC	Lever,Top Joint
138	MLEVP0054AWZZ	J	AC	Lever,Midle Joint
139	MLEVP0055AWZZ	J	AC	Lever,Bottom Joint
801	XBPSD26P04000	J	AA	Screw,ø2.6×4mm
802	XEBSD20P07000	J	AB	Screw,ø2×7mm
803	XEBSD20P06000	J	AA	Screw,ø2×6mm
804	XEBSD26P12000	J	AA	Screw,ø2.6×12mm
805	LX-EZ0005AWFD	J	AA	Screw,Spechal
806	XEBSD26P10000	J	AA	Screw,ø2.6×10mm
807	XEBSD20P06000	J	AA	Screw,ø2×6mm
MOB1	RMOTV0373AFM1	J	AQ	Main Cam Motor Ass'y
MOB2	RMOTV0373AFM1	J	AQ	Tray Motor Ass'y
SWB101,102	QSW-F0353AFZZ	J	AD	Switch,Leaf Type [Cam 1,2]
SWB103,104	QSW-F0353AFZZ	J	AD	Switch,Leaf Type [Cam 3,4]
SWB105	QSW-P0920AFZZ	J	AC	Switch,Push Type [CD Eject]
SWB106	QSW-P0920AFZZ	J	AC	Switch,Push Type [CD Tray Close]
SWB107	QSW-P0920AFZZ	J	AC	Switch,Push Type [CD In]
SWB108	QSW-P0920AFZZ	J	AC	Switch,Push Type [CD Set]

CABINET PARTS

201	92LCAB2630AS1	J	AV	Front Panel Ass'y
201- 1	————		—	Front Panel (Not Replacement Item)
201- 2	92LBADGE1692A	J	AC	Badge,SHARP
203	HDECQ0277AWSA	J	AG	FL Panel
204	JKNBK0050AWSA	J	AC	Knob,Jog Volume
205	JKNBK0051AWSA	J	AC	Knob,Rec Volume
206	HDECQ0274AWSA	J	AK	Decoration,Jog
207	HDECQ0275AWSA	J	AK	Decoration,MD
208	GDORF0048AWSA	J	AF	MD Door
209	MSPRT0021AWZZ	J	AB	Spring,MD Door
210	JKNBZ0462AWSA	J	AE	Knob,Power
211	JKNBZ0439AWSA	J	AF	Knob,Operation
214	LHLDZ1168AWZZ1	J	AE	FL Holder
215	GITAR0320AWSA	J	AR	Back Panel
⚠216	QACCD0014AWZZ	J	AK	AC Power Supply Cord
⚠217	LBSHC0002AWZZ	J	AD	Bushing,AC Power Supply Cord
218	92LN-BAND1318A	J	AA	Nylon Band,80mm
219	LCHSM0062AWFW	J	AW	Main Chassis
220	LANGZ0019AWFW	J	AM	Bracket,MD Support
221	GLEGP0006AWSA	J	AE	Insulator
222	GLEGP0006AWSB	J	AG	Insulator
223	PFLT-0036AWZZ	J	AB	Felt
224	PCUSG0029AW00	J	AC	Cushion,PWB
225	92LCAB2630CS1	J	BA	Cabinet
⚠226	92LFSHOLD1652T	J	AB	Holder,Fuse
229	GCOVA1163AWSA	J	AL	Cover,CD Tray 1
230	GCOVA1164AWSA	J	AL	Cover,CD Tray 2

NO.	PART CODE	★	PRICE RANK	DESCRIPTION
231	GCOVA1165AWSA	J	AL	Cover,CD Tray 3
232	HDECP0042AWSA	J	AE	Filter,Remote Control
233	JKNBZ0444AWSA	J	AH	Knob,Edit
234	JKNBZ0442AWSA	J	AG	Knob,CD Edit
235	JKNBZ0443AWSA	J	AH	Knob,MD
236	JKNBZ0445AWSA	J	AH	Knob,Disc Select
237	PRDAR0102AWFW	J	AG	Heat Sink
238	LANGZ0020AWFW	J	AM	Bracket,Protect
240	QCNWN1266AWZZ	J	AC	Tip with Wire
241	92LCAUT1327A	J	AB	Caution,Fuse
602	XEBSD26P10000	J	AA	Screw,ø2.6×10mm
603	XJBSD30P08000	J	AA	Screw,ø3×8mm
605	LX-JZ0010AFFD	J	AA	Screw,ø3×10mm
606	XJBSF30P10000	J	AA	Screw,ø3×10mm
607	XHBSD40P08000	J	AA	Screw,ø4×8mm
608	XWSSD40-11000	J	AA	Washer,ø4mm
609	XJBSD30P06000	J	AA	Screw,ø3×6mm
610	XJSSD30P08000	J	AA	Screw,ø3×8mm
611	XWSSJ30-07000	J	AA	Washer,ø3×ø10×0.7mm
613	XEBSD30P10000	J	AA	Screw,ø3×10mm
614	XEBSF26P10000	J	AA	Screw,ø2.6×10mm

ACCESSORIES

	QCNWG0003AWZZ	J	AN	Analog Connecting Cable×2
	SPAKA0164AWZZ	J	AH	Packing Add.,Left/Right
	TINSE0207AWZZ	J	AK	Operation Manual
	TINSZ0283AWZZ	J	AB	Quick Guide
	TLABM0055AWZZ	J	AC	Feature Label
	TLABR0947AWZZ	J	AB	Bar Cord Label
	RRMCG0142AWSA	J	AY	Remote Control
	92LLID1810A	J	AQ	Battery Lid,Remote Control

P.W.B. ASSEMBLY (Not Replacement Item)

PWB-A	92LPWB2631MANS	J	—	Main
PWB-B1~5	92LPWB2631DPLS	J	—	Display/Headphones/Mic/Switch/ Switch (Combined Ass'y)
PWB-C	92LPWB2631CDUS	J	—	CD Servo
PWB-D	92LPWB2631CHGS	J	—	CD Changer
PWB-E	92LPWB2604MDSS	J	—	MD Main
PWB-F	QPWBF0400AWZZ	J	AC	MD Mechanism Switch (PWB Only)
PWB-G	QPWBF0027AWZZ	J	AD	CD Motor (PWB Only)
PWB-H	QPWBF0322AWZZ	J	AC	Tray Switch (PWB Only)

OTHER SERVICE PARTS

QCNWK0043AFZZ	J	AG	Extension Cable, TP751 (6Pin)
QCNWK0059AFZZ	J	AF	Extension Cable (2Pin)
QCNWK0107AFZZ	J	AH	Extension Cable (6Pin)
QCNWK0108AFZZ	J	AL	Extension Flat Cable (28Pin)
QCNWK0109AFZZ	J	AH	Extension Flat Cable (5Pin)
RRCDT0101AFZZ	J	CB	Test Disc,High Reflection
RRCDT0103AFZZ	J	BK	Head Adjusting Transparend Disc
RUNTK0457AFZZ	J	BE	Extension PWB
UDSKM0001AFZZ	J	AZ	Recording Mini Disc

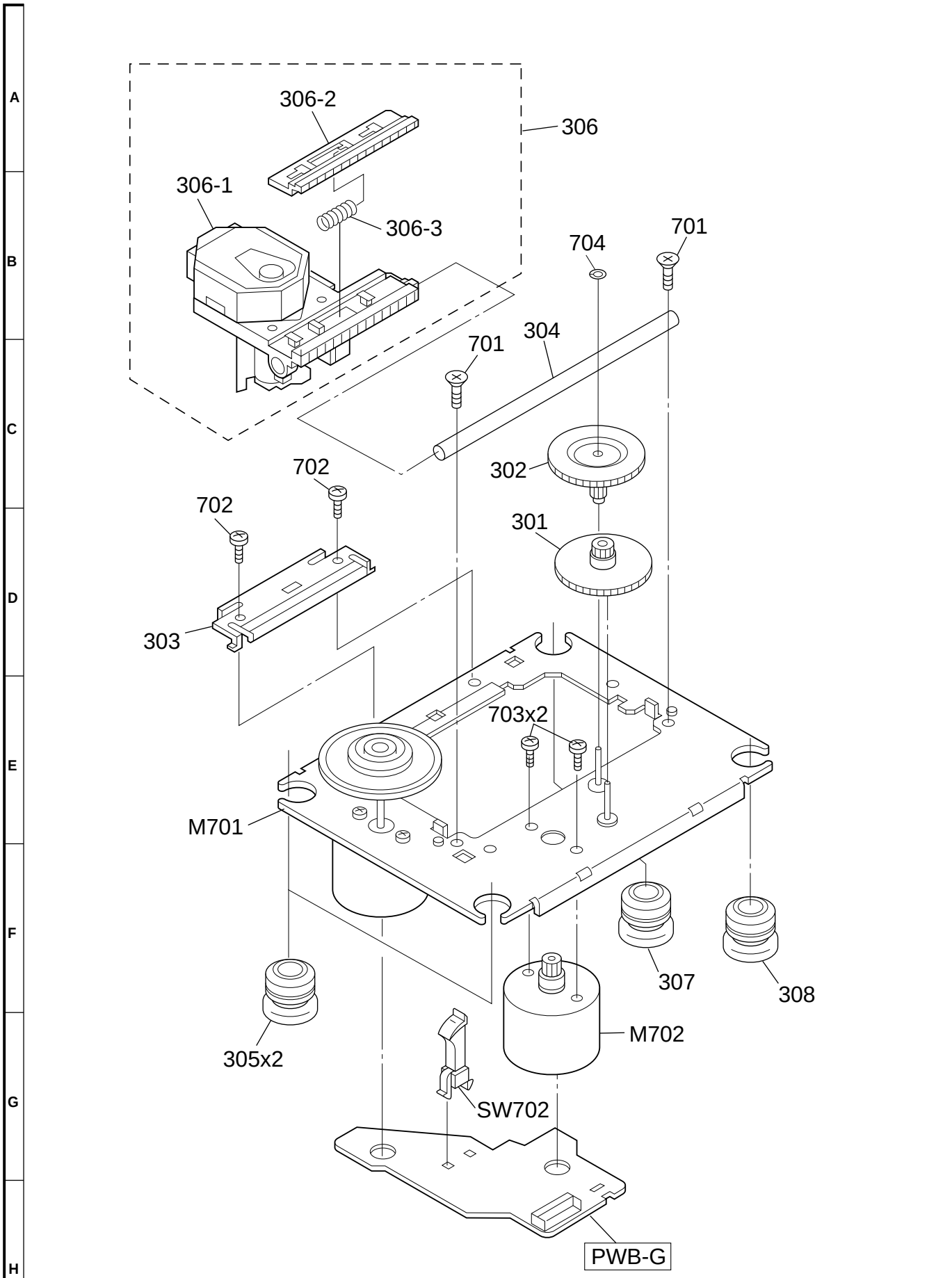


Figure 8 CD MECHANISM EXPLODED VIEW

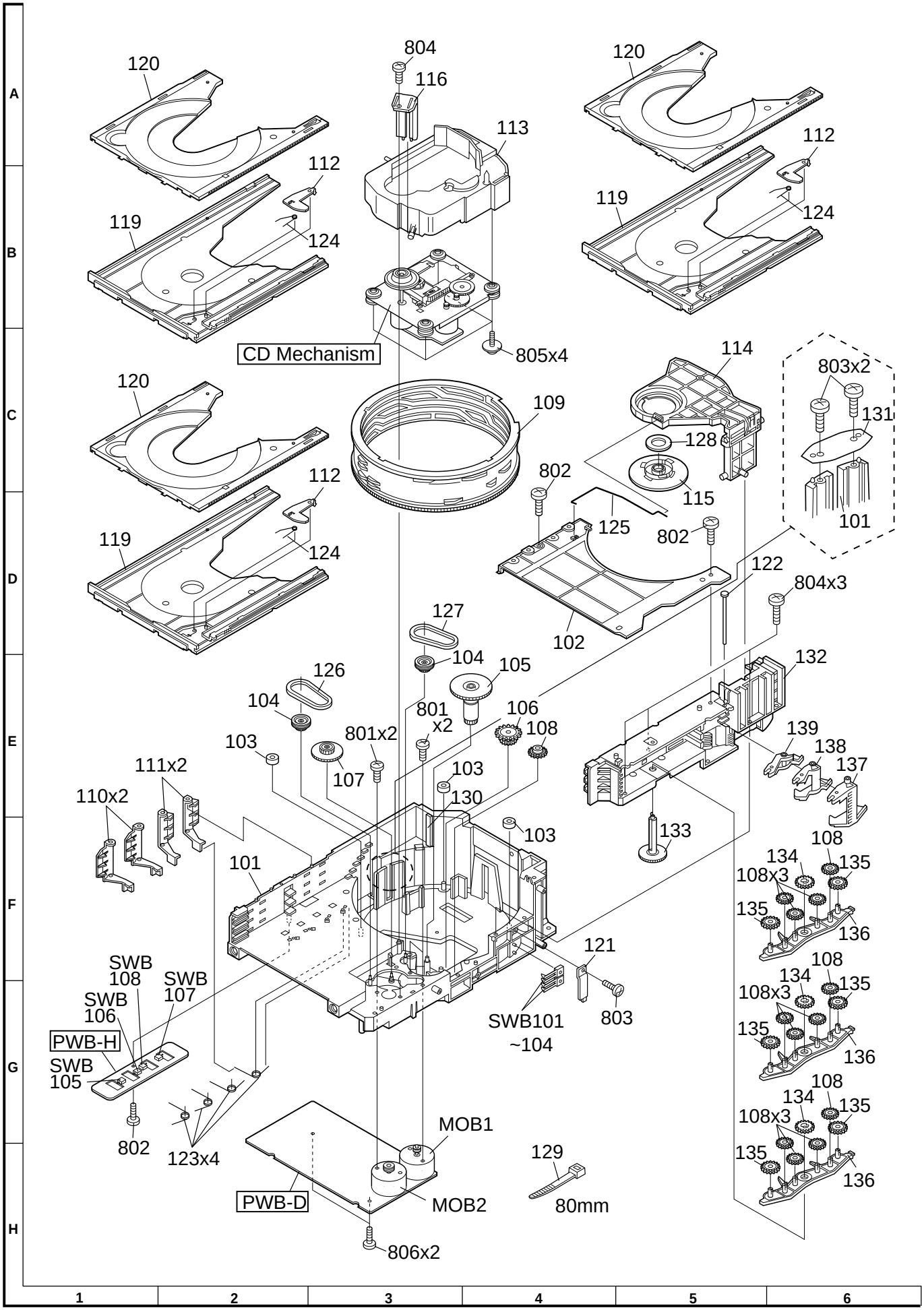


Figure 9 CD CHANGER MECHANISM EXPLODED VIEW

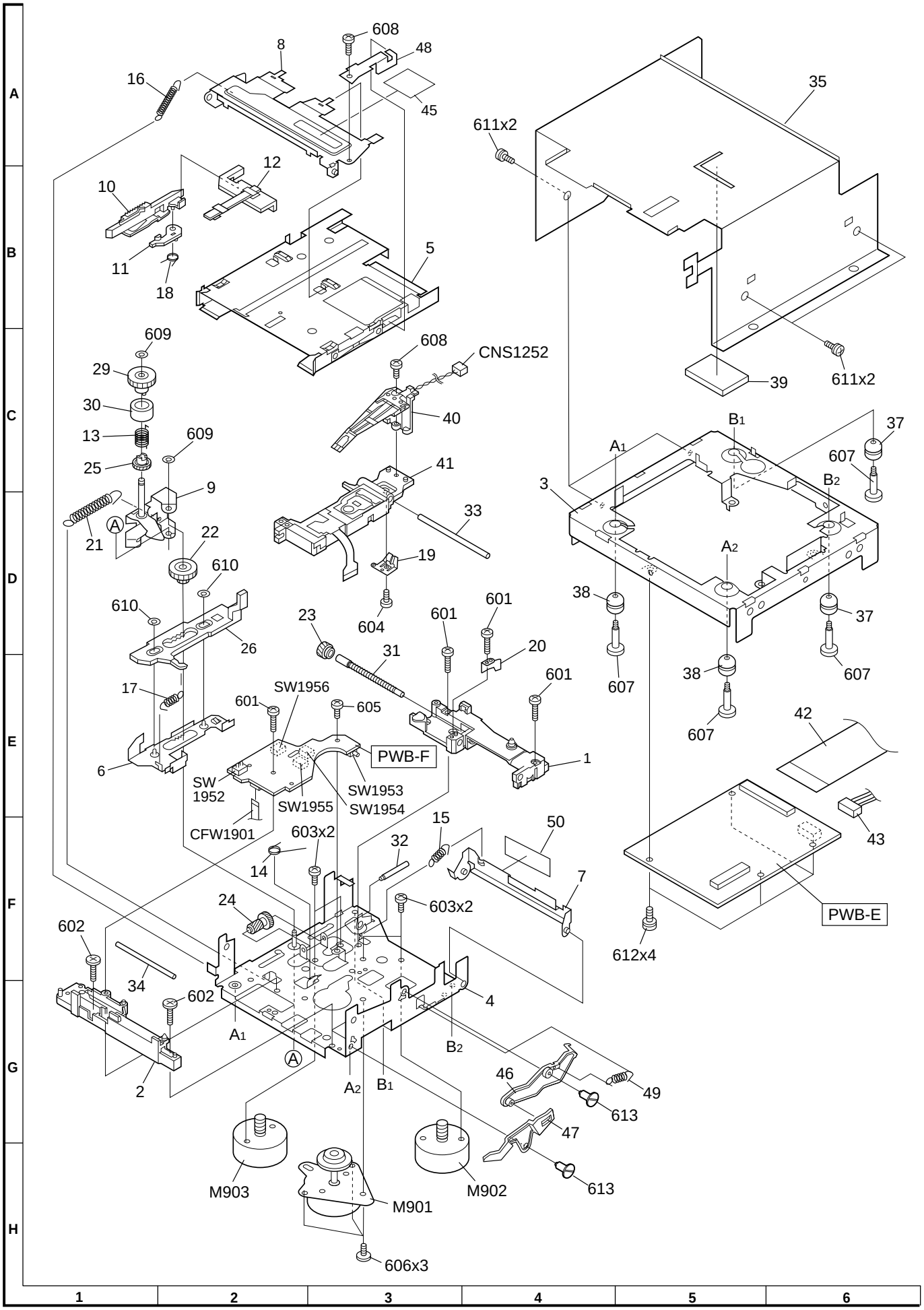


Figure 10 MD MECHANISM EXPLODED VIEW

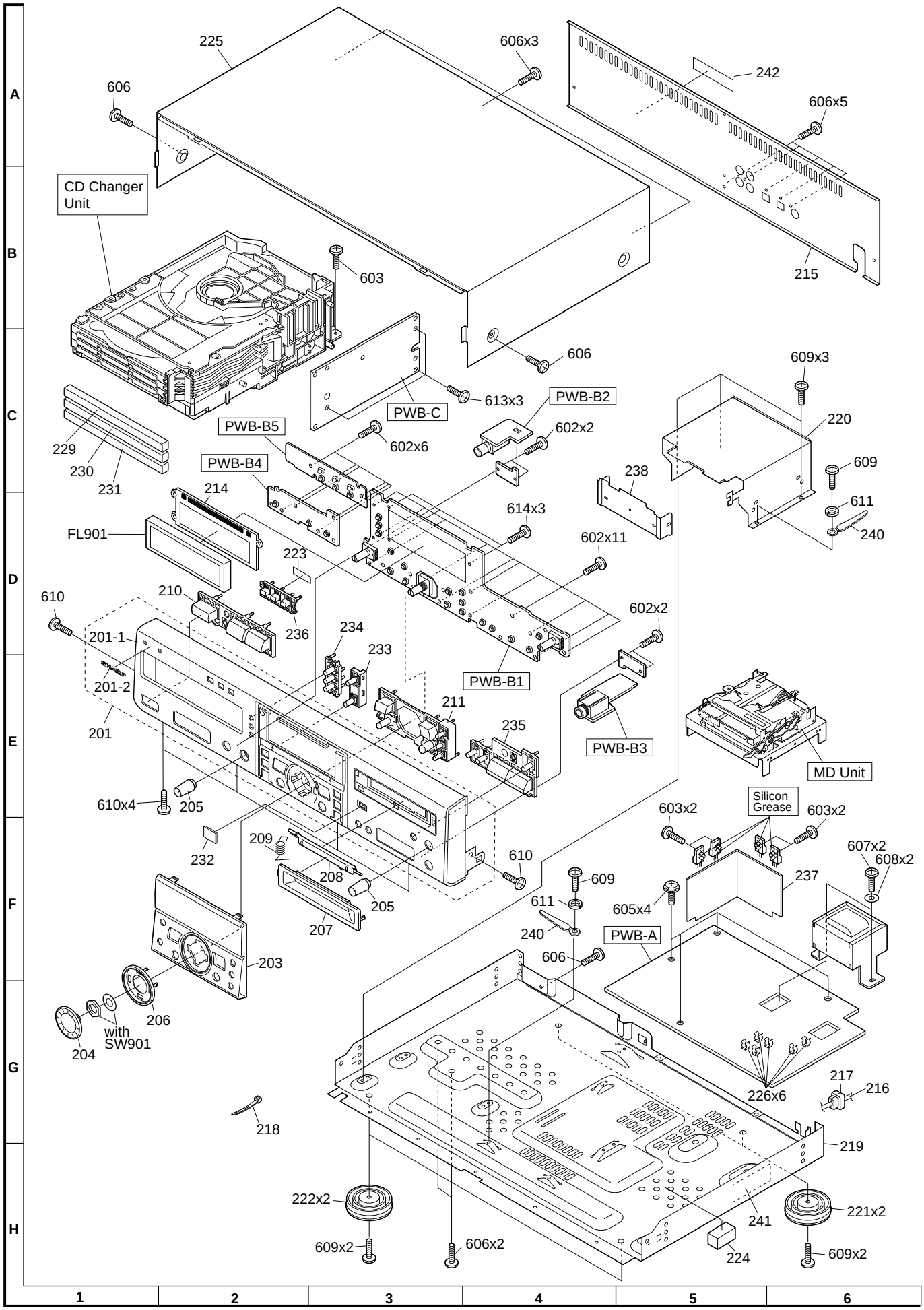
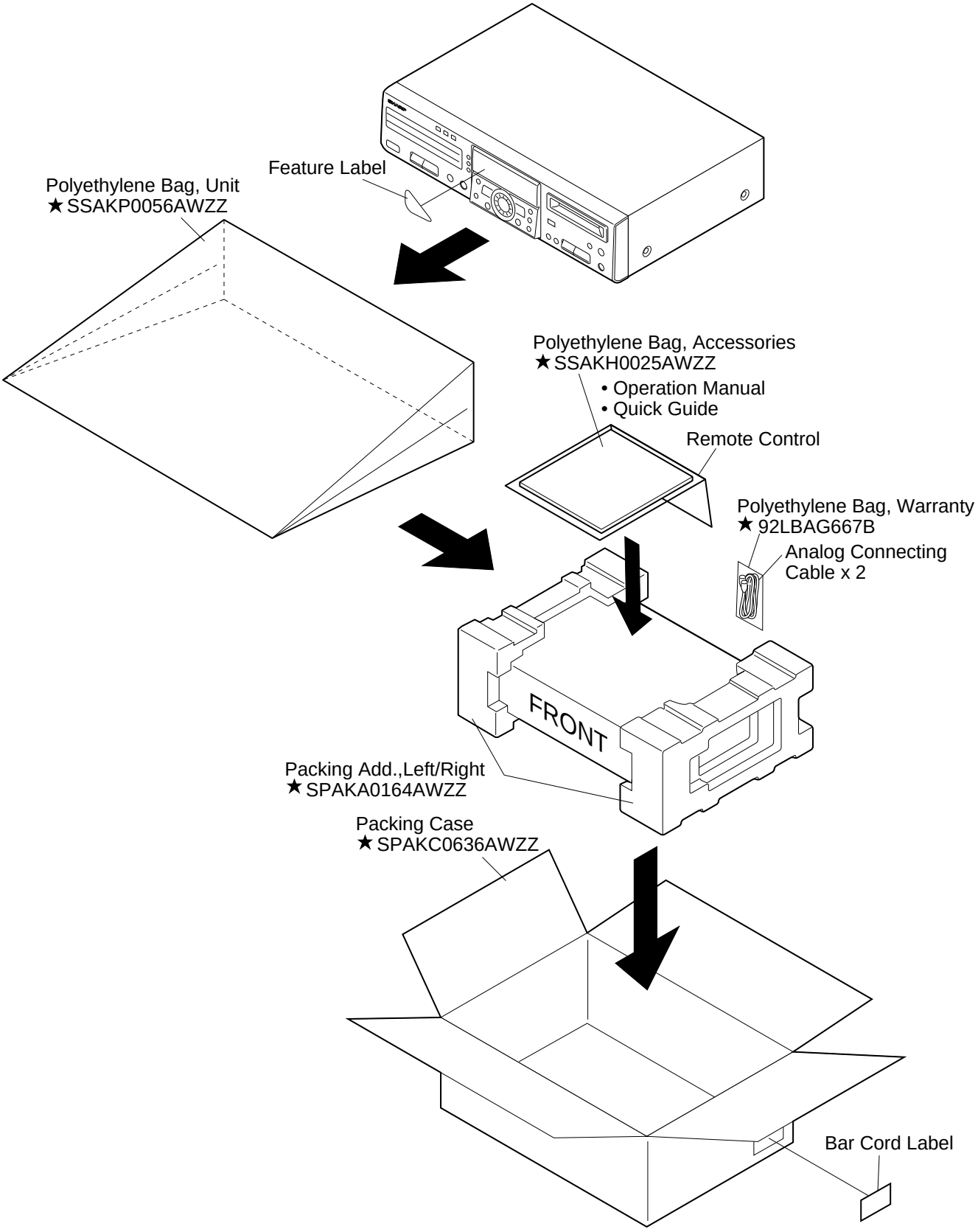


Figure 11 CABINET EXPLODED VIEW

PACKING OF THE SET



★ : Not Replacement Item

SHARP

COPYRIGHT © 1998 BY SHARP COPORATION

ALL RIGHTS RESERVED.

No part of this publication may be reproduced,
stored in a retrieval system, or transmitted in
any from or by any means, electronic, mechanical,
photocopying, recording, or otherwise, without
prior written permission of the publisher.

SHARP CORPORATION
Communication Systems Group
Quality & Reliability Control Center
Higashihiroshima, Hiroshima 739-0192, Japan

Printed in Japan

A9802-652NS•HA•M

SC